CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS
(NOTES omitted)

INSTRUMENTS

G06 COMPUTING OR CALCULATING; COUNTING
(NOTES omitted)

G06F ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:
- "handling" includes processing or transporting of data;
- "data processing equipment" means an association of an electric digital data processor classifiable under group G06F 7/00, with one or more arrangements classifiable under groups G06F 1/00 - G06F 5/00 and G06F 9/00 - G06F 13/00.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

G06F 3/18	covered by	G06F 3/00, G06K 11/00
G06F 7/04	covered by	G06F 7/02
G06F 9/302 - G06F 9/318	covered by	G06F 9/30

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Details not covered by groups G06F 3/00 - G06F 13/00 and G06F 21/00 (architectures of general purpose stored program computers G06F 15/76)

1/02 . Digital function generators

1/022 . . {Waveform generators, i.e. devices for generating periodical functions of time, e.g. direct digital synthesizers (G06F 1/025, G06F 1/03 take precedence)}

1/025 . . for functions having two-valued amplitude, e.g. Walsh functions

1/0255 . . . {Walsh or analogous functions}

1/03 . . working, at least partly, by table look-up (G06F 1/025 takes precedence)

NOTE

In order to be classified in this group, the table must contain function values of the desired or an intermediate function, not merely coefficients.

1/0307 . . . {Logarithmic or exponential functions (G06F 1/0314, G06F 1/035 take precedence)}

1/0314 . . . {the table being stored on a peripheral device, e.g. papertape, drum}

1/0321 . . . {Waveform generators, i.e. devices for generating periodical functions of time, e.g. direct digital synthesizers (G06F 1/0314, G06F 1/035 take precedence)}

1/0328 . . . . {in which the phase increment is adjustable, e.g. by using an adder-accumulator}

1/0335 . . . . . {the phase increment itself being a composed function of two or more variables, e.g. frequency and phase}

1/0342 . . . . {for generating simultaneously two or more related waveforms, e.g. with different phase angles only}

1/035 . . . Reduction of table size {(G06F 1/0314 takes precedence)}

1/0353 . . . . {by using symmetrical properties of the function, e.g. using most significant bits for quadrant control}

1/0356 . . . . {by using two or more smaller tables, e.g. addressed by parts of the argument}

1/04 . Generating or distributing clock signals or signals derived directly therefrom

1/06 . . Clock generators producing several clock signals {(G06F 1/08 - G06F 1/14 take precedence)}

1/08 . . Clock generators with changeable or programmable clock frequency

1/10 . . Distribution of clock signals {, e.g. skew}

1/105 . . . {in which the distribution is at least partially optical}

1/12 . . Synchronisation of different clock signals {provided by a plurality of clock generators}

1/14 . . Time supervision arrangements, e.g. real time clock

1/16 . Constructional details or arrangements

Samsung Ex. 1123, p. 1
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

1/1601 . . {Constructional details related to the housing of computer displays, e.g. of CRT monitors, of flat displays (constructional details related to flat displays integrated in a portable computer, e.g. laptop, handheld computer G06F 1/1637; constructional details related to television receivers H04N 5/64)}

1/1603 . . . {Arrangements to protect the display from incident light, e.g. hoods}

1/1605 . . . {Multimedia displays, e.g. with integrated or attached speakers, cameras, microphones}

1/1607 . . . {Arrangements to support accessories mechanically attached to the display housing (G06F 1/1603, G06F 1/1605 take precedence)}

1/1609 . . . . {to support filters or lenses}

1/1611 . . . . {to support document holders}

1/1613 . . {for portable computers (cooling arrangements therefor G06F 1/203; constructional details or arrangements for pocket calculators, electronic agendas or books G06F 15/0216; constructional details of portable telephone sets: with several bodies H04M 1/0202)}

WARNING

Group G06F 1/1613 is impacted by reclassification into group G06F 1/1629.

Groups G06F 1/1613 and G06F 1/1629 should be considered in order to perform a complete search.

1/1615 . . . {with several enclosures having relative motions, each enclosure supporting at least one I/O or computing function (constructional details of portable telephones comprising a plurality of mechanically joined movable body parts H04M 1/0206)}

1/1616 . . . . {with folding flat displays, e.g. laptop computers or notebooks having a clamshell configuration, with body parts pivoting to an open position around an axis parallel to the plane they define in closed position}

1/1618 . . . . . {the display being foldable up to the back of the other housing with a single degree of freedom, e.g. by 360° rotation over the axis defined by the rear edge of the base enclosure}

1/162 . . . . . {changing, e.g. reversing, the face orientation of the screen with a two degrees of freedom mechanism, e.g. for folding into tablet PC like position or orienting towards the direction opposite to the user to show to a second user}

1/1622 . . . . {with enclosures rotating around an axis perpendicular to the plane they define or with ball-joint coupling, e.g. PDA with display enclosure orientation changeable between portrait and landscape by rotation with respect to a coplanar body enclosure}

1/1624 . . . . {with sliding enclosures, e.g. sliding keyboard or display}

1/1626 . . . {with a single-body enclosure integrating a flat display, e.g. Personal Digital Assistants [PDAs]}

1/1628 . . . {Enclosures for carrying portable computers with peripheral devices, e.g. cases for a laptop and a printer}

WARNING

Group G06F 1/1628 is impacted by reclassification into groups A45C 11/003 and G06F 1/1629.

Groups G06F 1/1628, A45C 11/003 and G06F 1/1629 should be considered in order to perform a complete search.

1/1629 . . . {Protective covers or auxiliary enclosures for portable computers (for carrying with peripheral devices G06F 1/1628; for storing A45C 11/003)}

WARNING

Group G06F 1/1629 is incomplete pending reclassification of documents from groups A45C 11/00, A45C 11/001, A45C 11/003, G06F 1/1613, G06F 1/1628, G06F 2200/1633 and H04B 1/3888.

All groups listed in this Warning should be considered in order to perform a complete search.

1/163 . . . {Wearable computers, e.g. on a belt}

1/1632 . . . {External expansion units, e.g. docking stations}

1/1633 . . . {Constructional details or arrangements of portable computers not specific to the type of enclosures covered by groups G06F 1/1615 - G06F 1/1626}

1/1635 . . . . {Details related to the integration of battery packs and other power supplies such as fuel cells or integrated AC adapter}

1/1637 . . . . {Details related to the display arrangement, including those related to the mounting of the display in the housing}

1/1639 . . . . . {the display being based on projection}

1/1641 . . . . . {the display being formed by a plurality of foldable display components (G06F 1/1647 takes precedence)}

1/1643 . . . . . {the display being associated to a digitizer, e.g. laptops that can be used as penpads (details related to the relative motion of the display enclosure with respect to the body enclosure, e.g. to move between laptop and tablet PC configuration G06F 1/1615)}

1/1645 . . . . . {the display being suitable to be used in combination with an external overhead projector}

1/1647 . . . . . {including at least an additional display (G06F 1/1692 takes precedence)}

1/1649 . . . . . {the additional display being independently orientable, e.g. for presenting information to a second user}

1/165 . . . . . {the additional display being small, e.g. for presenting status information}

1/1652 . . . . . {the display being flexible, e.g. mimicking a sheet of paper, or rollable}

1/1654 . . . . . {the display being detachable, e.g. for remote use}

Samsung Ex. 1123, p. 2
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

1/1656 . . . . {Details related to functional adaptations of the enclosure, e.g. to provide protection against EMI, shock, water, or to host detachable peripherals like a mouse or removable expansions units like PCMCIA cards, or to provide access to internal components for maintenance or to removable storage supports like CDs or DVDs, or to mechanically mount accessories (mounting of accessories to a computer display G06F 1/1607; display hoods G06F 1/1603; cooling arrangements for portable computers G06F 1/203)}

WARNING

Group G06F 1/1656 is incomplete pending reclassification of documents from groups A45C 11/003 and G06F 2200/1633.

Groups A45C 11/003, G06F 2200/1633 and G06F 1/1656 should be considered in order to perform a complete search.

1/1658 . . . . . {related to the mounting of internal components, e.g. disc drive or any other functional module}

1/166 . . . . . {related to integrated arrangements for adjusting the position of the main body with respect to the supporting surface, e.g. legs for adjusting the tilt angle}

1/1662 . . . . {Details related to the integrated keyboard}

1/1664 . . . . . {Arrangements for ergonomically adjusting the disposition of keys of the integrated keyboard}

1/1666 . . . . . {Arrangements for reducing the size of the integrated keyboard for transport, e.g. foldable keyboards, keyboards with collapsible keys (G06F 1/1664 takes precedence)}

1/1667 . . . . . {Arrangements for adjusting the tilt angle of the integrated keyboard independently from the main body (adjusting the tilt angle integrally with the main body G06F 1/166)}

1/1669 . . . . . {Detachable keyboards}

1/1671 . . . . . {Special purpose buttons or auxiliary keyboards, e.g. retractable mini keypads, keypads or buttons that remain accessible at closed laptop (G06F 1/1666 takes precedence)}

1/1673 . . . . . {Arrangements for projecting a virtual keyboard}

1/1675 . . . . {Miscellaneous details related to the relative movement between the different enclosures or enclosure parts}

1/1677 . . . . . {for detecting open or closed state or particular intermediate positions assumed by movable parts of the enclosure, e.g. detection of display lid position with respect to main body in a laptop, detection of opening of the cover of battery compartment}

1/1679 . . . . . {for locking or maintaining the movable parts of the enclosure in a fixed position, e.g. latching mechanism at the edge of the display in a laptop or for the screen protective cover of a PDA (G06F 1/1681 takes precedence)}

1/1681 . . . . . {Details related solely to hinges (hinge details related to the transmission of signals or power are classified in G06F 1/1683)}

1/1683 . . . . . {for the transmission of signal or power between the different housings, e.g. details of wired or wireless communication, passage of cabling}

1/1684 . . . . {Constructional details or arrangements related to integrated I/O peripherals not covered by groups G06F 1/1635 - G06F 1/1675}

1/1686 . . . . . {the I/O peripheral being an integrated camera}

1/1688 . . . . . {the I/O peripheral being integrated loudspeakers}

1/169 . . . . . {the I/O peripheral being an integrated pointing device, e.g. trackball in the palm rest area, mini-joystick integrated between keyboard keys, touch pads or touch stripes (G06F 1/1643 takes precedence; constructional details of pointing devices G06F 3/033)}

1/1692 . . . . . {the I/O peripheral being a secondary touch screen used as control interface, e.g. virtual buttons or sliders}

1/1694 . . . . . {the I/O peripheral being a single or a set of motion sensors for pointer control or gesture input obtained by sensing movements of the portable computer}

1/1696 . . . . . {the I/O peripheral being a printing or scanning device}

1/1698 . . . . . {the I/O peripheral being a sending/receiving arrangement to establish a cordless communication link, e.g. radio or infrared link, integrated cellular phone (details of antennas disposed inside a computer H01Q 1/2266)}

1/18 . . Packaging or power distribution

1/181 . . . {Enclosures (for portable computers G06F 1/1613)}

1/182 . . . . {with special features, e.g. for use in industrial environments; grounding or shielding against radio frequency interference [RFI] or electromagnetical interference [EMI]}

1/183 . . . {Internal mounting support structures, e.g. for printed circuit boards, internal connecting means (for buses G06F 13/409)}

1/184 . . . . {Mounting of motherboards}

1/185 . . . . {Mounting of expansion boards}

1/186 . . . . {Securing of expansion boards in correspondence to slots provided at the computer enclosure}

1/187 . . . . {Mounting of fixed and removable disk drives}

1/188 . . . . {Mounting of power supply units}

1/189 . . . {Power distribution}

1/20 . . Cooling means

Samsung Ex. 1123, p. 3
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

1/203 . . . {for portable computers, e.g. for laptops}
1/206 . . . {comprising thermal management}
1/22 . Means for limiting or controlling the pin/gate ratio
1/24 . Resetting means
1/26 . Power supply means, e.g. regulation thereof (for memories G11C)
1/263 . . {Arrangements for using multiple switchable power supplies, e.g. battery and AC (G06F 1/30 takes precedence)}
1/266 . . {Arrangements to supply power to external peripherals either directly from the computer or under computer control, e.g. supply of power through the communication port, computer controlled power-strips}
1/28 . . Supervision thereof, e.g. detecting power-supply failure by out of limits supervision
1/30 . . Means for acting in the event of power-supply failure or interruption, e.g. power-supply fluctuations (for resetting only G06F 1/24)
1/305 . . . {in the event of power-supply fluctuations}
1/32 . . Means for saving power
1/3203 . . . Power management, i.e. event-based initiation of a power-saving mode
1/3206 . . . . Monitoring of events, devices or parameters that trigger a change in power modality
1/3209 . . . . . Monitoring remote activity, e.g. over telephone lines or network connections
1/3212 . . . . . Monitoring battery levels, e.g. power saving mode being initiated when battery voltage goes below a certain level
1/3215 . . . . . Monitoring of peripheral devices
1/3218 . . . . . of display devices
1/3221 . . . . . of disk drive devices
1/3225 . . . . . of memory devices
1/3228 . . . . . Monitoring task completion, e.g. by use of idle timers, stop commands or wait commands
1/3231 . . . . . Monitoring the presence, absence or movement of users
1/3234 . . . . Power saving characterised by the action undertaken
1/3237 . . . . . by disabling clock generation or distribution
1/324 . . . . . by lowering clock frequency
1/3243 . . . . . {Power saving in microcontroller unit}
1/3246 . . . . . by software initiated power-off
1/325 . . . . . {Power saving in peripheral device}
1/3253 . . . . . {Power saving in bus}
1/3256 . . . . . {Power saving in optical drive}
1/3259 . . . . . {Power saving in cursor control device, e.g. mouse, joystick, trackball}
1/3262 . . . . . {Power saving in digitizer or tablet}
1/3265 . . . . . {Power saving in display device}
1/3268 . . . . . {Power saving in hard disk drive}
1/3271 . . . . . {Power saving in keyboard}
1/3275 . . . . . {Power saving in memory, e.g. RAM, cache}
1/3278 . . . . . {Power saving in modem or I/O interface}
1/3281 . . . . . {Power saving in PCMCIA card}
1/3284 . . . . . {Power saving in printer}
1/3287 . . . . . by switching off individual functional units in the computer system
1/329 . . . . . by task scheduling
1/3293 . . . . . by switching to a less power-consuming processor, e.g. sub-CPU
1/3296 . . . . . by lowering the supply or operating voltage

3/00 Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements

3/002 . {Specific input/output arrangements not covered by G06F 3/01 - G06F 3/16 (other optical apparatus G02B 27/00)}
3/005 . . {Input arrangements through a video camera}
3/007 . {Digital input from or digital output to memories of the shift register type}
3/01 . Input arrangements or combined input and output arrangements for interaction between user and computer (G06F 3/16 takes precedence)
3/011 . . {Arrangements for interaction with the human body, e.g. for user immersion in virtual reality (blind teaching G09B 21/00)}
3/012 . . . {Head tracking input arrangements}
3/013 . . . {Eye tracking input arrangements (G06F 3/015 takes precedence)}
3/014 . . . {Hand-worn input/output arrangements, e.g. data gloves}
3/015 . . . {Input arrangements based on nervous system activity detection, e.g. brain waves [EEG] detection, electromyograms [EMG] detection, electrodermal response detection}
3/016 . . {Input arrangements with force or tactile feedback as computer generated output to the user}
3/017 . . {Gesture based interaction, e.g. based on a set of recognized hand gestures (interaction based on gestures traced on a digitiser G06F 3/04883)}
3/018 . . {Input/output arrangements for oriental characters}
3/02 . . Input arrangements using manually operated switches, e.g. using keyboards or dials
3/0202 . . . {Constructional details or processes of manufacture of the input device}
3/0205 . . . . {Lever arrangements for operating keyboard cursor control keys in a joystick-like manner}
3/0208 . . . . {Arrangements for adjusting the tilt angle of a keyboard, e.g. pivoting legs (for keyboards integrated in a laptop computer G06F 1/1667)}
3/021 . . . . {Arrangements integrating additional peripherals in a keyboard, e.g. card or barcode reader, optical scanner}
3/0213 . . . . . {Arrangements providing an integrated pointing device in a keyboard, e.g. trackball, mini-joystick (for pointing devices integrated in a laptop computer G06F 1/169; joysticks G05G 9/047; constructional details of pointing devices G06F 3/033)}
3/0216 . . . . {Arrangements for ergonomically adjusting the disposition of keys of a keyboard (for keyboards integrated in a laptop computer G06F 1/1664)}

Samsung Ex. 1123, p. 4
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/0219 . . . . {Special purpose keyboards}
3/0221 . . . . {Arrangements for reducing keyboard size for transport or storage, e.g. foldable keyboards, keyboards with collapsible keys (G06F 3/0216 takes precedence; for keyboards integrated in a laptop computer G06F 1/1666)}
3/0224 . . . . {Key guide holders}
3/0227 . . . {Cooperation and interconnection of the input arrangement with other functional units of a computer (G06F 3/023 - G06F 3/037 take precedence)}
3/023 . . . Arrangements for converting discrete items of information into a coded form, e.g. arrangements for interpreting keyboard generated codes as alphanumeric codes, operand codes or instruction codes
3/0231 . . . . {Cordless keyboards}
3/0232 . . . . {Manual direct entries, e.g. key to main memory}
3/0233 . . . . {Character input methods}
3/0234 . . . . . {using switches operable in different directions}
3/0235 . . . . . {using chord techniques (G06F 3/0234 takes precedence)}
3/0236 . . . . . {using selection techniques to select from displayed items}
3/0237 . . . . . {using prediction or retrieval techniques}
3/0238 . . . . {Programmable keyboards (key guide holders G06F 3/0224)}
3/027 . . . . for insertion of the decimal point
3/03 . . Arrangements for converting the position or the displacement of a member into a coded form

NOTE

In this group, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

3/0304 . . . {Detection arrangements using opto-electronic means (constructional details of pointing devices not related to the detection arrangement using opto-electronic means G06F 3/033; optical digitisers G06F 3/042)}
3/0308 . . . . {comprising a plurality of distinctive and separately oriented light emitters or reflectors associated to the pointing device, e.g. remote cursor controller with distinct and separately oriented LEDs at the tip whose radiations are captured by a photo-detector associated to the screen}
3/0312 . . . . {for tracking the rotation of a spherical or circular member, e.g. optical rotary encoders used in mice or trackballs using a tracking ball or in mouse scroll wheels (tracking relative movement in co-operation with a regularly or irregularly patterned surface, e.g. as in optical mice G06F 3/0317; constructional details of scroll or thumb-wheels G06F 3/0362; optical rotary encoders G01D 5/3473)}
3/0317 . . . . {in co-operation with a patterned surface, e.g. absolute position or relative movement detection for an optical mouse or pen positioned with respect to a coded surface}
3/0321 . . . . . {by optically sensing the absolute position with respect to a regularly patterned surface forming a passive digitiser, e.g. pen optically detecting position indicative tags printed on a paper sheet (constructional details of pen-shaped pointing devices G06F 3/03545, G06F 3/03542, G06F 3/037)}
3/0325 . . . . {using a plurality of light emitters or reflectors or a plurality of detectors forming a reference frame from which to derive the orientation of the object, e.g. by triangulation or on the basis of reference deformation in the picked up image}
3/033 . . . Pointing devices displaced or positioned by the user {, e.g. mice, trackballs, pens or joysticks}; Accessories therefor (digitisers characterised by the transducing means G06F 3/041)
3/0334 . . . . {Foot operated pointing devices}
3/0338 . . . . with detection of limited linear or angular displacement of an operating part of the device from a neutral position, e.g. isotonic or isometric joysticks
3/0346 . . . . with detection of the device orientation or free movement in a 3D space, e.g. 3D mice, 6-DOF [six degrees of freedom] pointers using gyroscopes, accelerometers or tilt-sensors
3/0354 . . . . with detection of 2D relative movements between the device, or an operating part thereof, and a plane or surface, e.g. 2D mice, trackballs, pens or pucks
3/03541 . . . . . {Mouse/trackball convertible devices, in which the same ball is used to track the 2D relative movement}
3/03542 . . . . . {Light pens for emitting or receiving light}
3/03543 . . . . . {Mice or pucks (G06F 3/03541 takes precedence)}
3/03544 . . . . . {having dual sensing arrangement, e.g. two balls or two coils used to track rotation of the pointing device}
3/03545 . . . . . {Pens or stylus}
3/03546 . . . . . {using a rotatable ball at the tip as position detecting member}
3/03547 . . . . . {Touch pads, in which fingers can move on a surface}
3/03548 . . . . . {Sliders, in which the moving part moves in a plane}
3/03549 . . . . . {Trackballs (G06F 3/03541 takes precedence)}
3/0362 . . . . with detection of 1D translations or rotations of an operating part of the device, e.g. scroll wheels, sliders, knobs, rollers or belts
3/037 . . . . using the raster scan of a cathode-ray tube [CRT] for detecting the position of the member, e.g. light pens cooperating with CRT monitors
3/038 . . . . Control and interface arrangements therefor, e.g. drivers or device-embedded control circuitry

Samsung Ex. 1123, p. 5
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/0383 . . . . . {Signal control means within the pointing device}
3/0386 . . . . . {for light pen}
3/039 . . . . Accessories therefor, e.g. mouse pads
3/0393 . . . . . {Accessories for touch pads or touch screens, e.g. mechanical guides added to touch screens for drawing straight lines, hard keys overlaying touch screens or touch pads}
3/0395 . . . . . {Mouse pads}
3/041 . . . Digitisers, e.g. for touch screens or touch pads, characterised by the transducing means
3/0412 . . . . {Digitisers structurally integrated in a display}
3/0414 . . . . {using force sensing means to determine a position}
3/04142 . . . . . {the force sensing means being located peripherally, e.g. disposed at the corners or at the side of a touch sensing plate}
3/04144 . . . . . {using an array of force sensing means (position sensing using the local deformation of sensor cells G06F 3/0447)}
3/04146 . . . . . {using pressure sensitive conductive elements delivering a boolean signal and located between crossing sensing lines, e.g. located between X and Y sensing line layers}
3/0416 . . . . {Control or interface arrangements specially adapted for digitisers}
3/04162 . . . . . {for exchanging data with external devices, e.g. smart pens, via the digitiser sensing hardware}
3/04164 . . . . . {Connections between sensors and controllers, e.g. routing lines between electrodes and connection pads}
3/04166 . . . . . {Details of scanning methods, e.g. sampling time, grouping of sub areas or time sharing with display driving (Synchronisation with the driving of the display or the backlighting unit to avoid interferences generated internally G06F 3/04184)}
3/041661 . . . . . {using detection at multiple resolutions, e.g. coarse and fine scanning; using detection within a limited area, e.g. object tracking window}
3/041662 . . . . . {using alternate mutual and self-capacitive scanning}
3/0418 . . . . . {for error correction or compensation, e.g. based on parallax, calibration or alignment}
3/04182 . . . . . {Filtering of noise external to the device and not generated by digitiser components}
3/04184 . . . . . {Synchronisation with the driving of the display or the backlighting unit to avoid interferences generated internally}
3/04186 . . . . . {Touch location disambiguation}
3/042 . . . . by opto-electronic means
3/0421 . . . . . {by interrupting or reflecting a light beam, e.g. optical touch-screen}
3/0423 . . . . . {using sweeping light beams, e.g. using rotating or vibrating mirror}
3/0425 . . . . . {using a single imaging device like a video camera for tracking the absolute position of a single or a plurality of objects with respect to an imaged reference surface, e.g. video camera imaging a display or a projection screen, a table or a wall surface, on which a computer generated image is displayed or projected (tracking a projected light spot to determine a position on a display surface G06F 3/0386)}
3/0426 . . . . . {tracking fingers with respect to a virtual keyboard projected or printed on the surface (virtual keyboards on touch screens G06F 3/04886)}
3/0428 . . . . . {by sensing at the edges of the touch surface the interruption of optical paths, e.g. an illumination plane, parallel to the touch surface which may be virtual (sensing beam interruptions in a planar beam grid of an optical touch-screen G06F 3/0421)}
3/043 . . . . using propagating acoustic waves
3/0433 . . . . . {in which the acoustic waves are either generated by a movable member and propagated within a surface layer or propagated within a surface layer and captured by a movable member}
3/0436 . . . . . {in which generating transducers and detecting transducers are attached to a single acoustic waves transmission substrate}
3/044 . . . . by capacitive means
3/0441 . . . . . {using active external devices, e.g. active pens, for receiving changes in electrical potential transmitted by the digitiser, e.g. tablet driving signals}
3/0442 . . . . . {using active external devices, e.g. active pens, for transmitting changes in electrical potential to be received by the digitiser}
3/0443 . . . . . {using a single layer of sensing electrodes}
3/0444 . . . . . {using a single conductive element covering the whole sensing surface, e.g. by sensing the electrical current flowing at the corners}
3/0445 . . . . . {using two or more layers of sensing electrodes, e.g. using two layers of electrodes separated by a dielectric layer}
3/0446 . . . . . {using a grid-like structure of electrodes in at least two directions, e.g. using row and column electrodes}
3/0447 . . . . . {Position sensing using the local deformation of sensor cells}
3/0448 . . . . . {Details of the electrode shape, e.g. for enhancing the detection of touches, for generating specific electric field shapes, for enhancing display quality}
3/045 . . . . using resistive elements, e.g. a single continuous surface or two parallel surfaces put in contact
3/046 . . . . by electromagnetic means
3/047 . . . . using sets of wires, e.g. crossed wires

Samsung Ex. 1123, p. 6
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/048 . . Interaction techniques based on graphical user interfaces [GUI]

NOTE

This group covers subject matter where the focus is placed on the way the user can interact with the displayed data. The mere presence of a standard GUI in the context of the disclosure of a specific software application or a specific device capable of processing data related to its specific function, should be in general classified in the appropriate subclasses related to those software applications or specific devices.

3/0481 . . . based on specific properties of the displayed interaction object or a metaphor-based environment, e.g. interaction with desktop elements like windows or icons, or assisted by a cursor's changing behaviour or appearance

3/04812 . . . . Interaction techniques based on cursor appearance or behaviour, e.g. being affected by the presence of displayed objects

3/04815 . . . . Interaction with a metaphor-based environment or interaction object displayed as three-dimensional, e.g. changing the user viewpoint with respect to the environment or object

3/04817 . . . . using icons (graphical or visual programming using iconic symbols G06F 8/34)

3/0482 . . . . Interaction with lists of selectable items, e.g. menus

3/0483 . . . . Interaction with page-structured environments, e.g. book metaphor

3/0484 . . . for the control of specific functions or operations, e.g. selecting or manipulating an object, an image or a displayed text element, setting a parameter value or selecting a range

3/04842 . . . . Selection of displayed objects or displayed text elements (G06F 3/0482 takes precedence)

3/04845 . . . . for image manipulation, e.g. dragging, rotation, expansion or change of colour

3/04847 . . . . Interaction techniques to control parameter settings, e.g. interaction with sliders or dials

3/0485 . . . . Scrolling or panning

3/04855 . . . . . Interaction with scrollbars

3/0486 . . . . Drag-and-drop

3/0487 . . . using specific features provided by the input device, e.g. functions controlled by the rotation of a mouse with dual sensing arrangements, or of the nature of the input device, e.g. tap gestures based on pressure sensed by a digitiser

3/0488 . . . . using a touch-screen or digitiser, e.g. input of commands through traced gestures

3/04883 . . . . . for inputting data by handwriting, e.g. gesture or text

3/04886 . . . . . by partitioning the display area of the touch-screen or the surface of the digitising tablet into independently controllable areas, e.g. virtual keyboards or menus

3/0489 . . . . using dedicated keyboard keys or combinations thereof

3/04892 . . . . . Arrangements for controlling cursor position based on codes indicative of cursor displacements from one discrete location to another, e.g. using cursor control keys associated to different directions or using the tab key (arrangements for controlling cursor position based on coordinate signals G06F 3/038)

3/04895 . . . . . Guidance during keyboard input operation, e.g. prompting

3/04897 . . . . . {Special input arrangements or commands for improving display capability}

3/05 . Digital input using the sampling of an analogue quantity at regular intervals of time {, input from a/d converter or output to d/a converter}

3/06 . Digital input from, or digital output to, record carriers {, e.g. RAID, emulated record carriers or networked record carriers}

3/0601 . . {Interfaces specially adapted for storage systems}

NOTE

{In this subgroup the following classification rules must be observed:

For a complete classification in the field of G06F 3/0601 documents should receive classification symbols for "invention information" as follows:

- at least one symbol in G06F 3/0602 - G06F 3/0626 for the technical effect achieved and
- at least one symbol in G06F 3/0628 - G06F 3/0667 for the technique used and
- at least one symbol in G06F 3/0668 - G06F 3/0689 for the infrastructure involved.

The classification of "additional information" is optional. CPC symbols in the range G06F 2206/1004 - G06F 2206/101 should be used for classifying "additional information".}

3/0602 . . . {specifically adapted to achieve a particular effect}

3/0604 . . . . {Improving or facilitating administration, e.g. storage management}

3/0605 . . . . . {by facilitating the interaction with a user or administrator}

3/0607 . . . . . {by facilitating the process of upgrading existing storage systems, e.g. for improving compatibility between host and storage device}

3/0608 . . . . {Saving storage space on storage systems}

3/061 . . . . {Improving I/O performance}

3/0611 . . . . . {in relation to response time}

3/0613 . . . . . {in relation to throughput}

3/0614 . . . . {Improving the reliability of storage systems}

3/0616 . . . . . {in relation to life time, e.g. increasing Mean Time Between Failures [MTBF]}

3/0617 . . . . . {in relation to availability}

3/0619 . . . . . {in relation to data integrity, e.g. data losses, bit errors}

Samsung Ex. 1123, p. 7
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/062 . . . . {Securing storage systems}
3/0622 . . . . . {in relation to access}
3/0623 . . . . . {in relation to content}
3/0625 . . . . {Power saving in storage systems}
3/0626 . . . . {Reducing size or complexity of storage systems}
3/0628 . . . {making use of a particular technique}
3/0629 . . . . {Configuration or reconfiguration of storage systems}
3/0631 . . . . . {by allocating resources to storage systems}
3/0632 . . . . . {by initialisation or re-initialisation of storage systems}
3/0634 . . . . . {by changing the state or mode of one or more devices}
3/0635 . . . . . {by changing the path, e.g. traffic rerouting, path reconfiguration}
3/0637 . . . . . {Permissions}
3/0638 . . . . {Organizing or formatting or addressing of data}
3/064 . . . . . {Management of blocks}
3/0641 . . . . . {De-duplication techniques}
3/0643 . . . . . {Management of files}
3/0644 . . . . . {Management of space entities, e.g. partitions, extents, pools}
3/0646 . . . . {Horizontal data movement in storage systems, i.e. moving data in between storage devices or systems}
3/0647 . . . . . {Migration mechanisms}
3/0649 . . . . . {Lifecycle management}
3/065 . . . . . {Replication mechanisms}
3/0652 . . . . . {Erasing, e.g. deleting, data cleaning, moving of data to a wastebasket}
3/0653 . . . . {Monitoring storage devices or systems}
3/0655 . . . . {Vertical data movement, i.e. input-output transfer; data movement between one or more hosts and one or more storage devices}
3/0656 . . . . . {Data buffering arrangements}
3/0658 . . . . . {Controller construction arrangements}
3/0659 . . . . . {Command handling arrangements, e.g. command buffers, queues, command scheduling}
3/0661 . . . . . {Format or protocol conversion arrangements}
3/0662 . . . . {Virtualisation aspects}
3/0664 . . . . . {at device level, e.g. emulation of a storage device or system}
3/0665 . . . . . {at area level, e.g. provisioning of virtual or logical volumes}
3/0667 . . . . . {at data level, e.g. file, record or object virtualisation}
3/0668 . . . {adopting a particular infrastructure}
3/067 . . . . {Distributed or networked storage systems, e.g. storage area networks [SAN], network attached storage [NAS]}
3/0671 . . . . {In-line storage system}
3/0673 . . . . . {Single storage device}
3/0674 . . . . . {Disk device}
3/0676 . . . . . {Magnetic disk device}
3/0677 . . . . . {Optical disk device, e.g. CD-ROM, DVD}
3/0679 . . . . . {Non-volatile semiconductor memory device, e.g. flash memory, one time programmable memory [OTP]}
3/068 . . . . . {Hybrid storage device}
3/0682 . . . . . {Tape device}
3/0683 . . . . . {Plurality of storage devices}
3/0685 . . . . . {Hybrid storage combining heterogeneous device types, e.g. hierarchical storage, hybrid arrays}
3/0686 . . . . . {Libraries, e.g. tape libraries, jukebox}
3/0688 . . . . . {Non-volatile semiconductor memory arrays}
3/0689 . . . . . {Disk arrays, e.g. RAID, JBOD}
3/08 . . from or to individual record carriers, e.g. punched card {, memory card, integrated circuit [IC] card or smart card}
3/09 . Digital output to typewriters
3/12 . Digital output to print unit {, e.g. line printer, chain printer}
3/1201 . . {Dedicated interfaces to print systems}
3/1202 . . . {specifically adapted to achieve a particular effect}
3/1203 . . . . {Improving or facilitating administration, e.g. print management}
3/1204 . . . . . {resulting in reduced user or operator actions, e.g. presetting, automatic actions, using hardware token storing data}
3/1205 . . . . . {resulting in increased flexibility in print job configuration, e.g. job settings, print requirements, job tickets}
3/1206 . . . . . {resulting in increased flexibility in input data format or job format or job type}
3/1207 . . . . . {resulting in the user being informed about print result after a job submission}
3/1208 . . . . . {resulting in improved quality of the output result, e.g. print layout, colours, workflows, print preview}
3/1209 . . . . . {resulting in adapted or bridged legacy communication protocols, e.g. emulation, protocol extension}
3/121 . . . . {Facilitating exception or error detection and recovery, e.g. fault, media or consumables depleted}
3/1211 . . . . {Improving printing performance}
3/1212 . . . . . {achieving reduced delay between job submission and print start}
3/1213 . . . . . {at an intermediate node or at the final node}
3/1214 . . . . . {at the submitting node}
3/1215 . . . . . {achieving increased printing speed, i.e. reducing the time between printing start and printing end}
3/1217 . . . . . {achieving reduced idle time at the output device or increased asset utilization}
3/1218 . . . . {Reducing or saving of used resources, e.g. avoiding waste of consumables or improving usage of hardware resources}
3/1219 . . . . . {with regard to consumables, e.g. ink, toner, paper}
3/122 . . . . . {with regard to computing resources, e.g. memory, CPU}
3/1221 . . . . . {with regard to power consumption}
3/1222 . . . . {Increasing security of the print job}

Samsung Ex. 1123, p. 8
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/1223 . . . {specifically adapted to use a particular technique}
3/1224 . . . . {Client or server resources management}
3/1225 . . . . . {Software update, e.g. print driver, modules, plug-ins, fonts}
3/1226 . . . . . {Discovery of devices having required properties}
3/1227 . . . . . {Printer definition files}
3/1228 . . . . . {Printing driverless or using generic drivers}
3/1229 . . . . {Printer resources management or printer maintenance, e.g. device status, power levels}
3/123 . . . . . {Software or firmware update, e.g. device firmware management}
3/1231 . . . . . {Device related settings, e.g. IP address, Name, Identification}
3/1232 . . . . . {Transmitting printer device capabilities, e.g. upon request or periodically}
3/1234 . . . . . {Errors handling and recovery, e.g. reprinting (G06F 3/1261 takes precedence)}
3/1235 . . . . . {caused by end of consumables, e.g. paper, ink, toner}
3/1236 . . . . {Connection management}
3/1237 . . . . {Print job management}
3/1238 . . . . . {Secure printing, e.g. user identification, user rights for device usage, unallowed content, blanking portions or fields of a page, releasing held jobs}
3/1239 . . . . . {Restricting the usage of resources, e.g. usage or user levels, credit limit, consumables, special fonts}
3/124 . . . . . {Parallel printing or parallel ripping}
3/1241 . . . . . {Dividing a job according to job requirements, e.g. black/white and colour pages, covers and body of books, tabs}
3/1242 . . . . . {Image or content composition onto a page}
3/1243 . . . . . {Variable data printing, e.g. document forms, templates, labels, coupons, advertisements, logos, watermarks, transactional printing, fixed content versioning}
3/1244 . . . . . {Job translation or job parsing, e.g. page banding}
3/1245 . . . . . {by conversion to intermediate or common format}
3/1246 . . . . . {by handling markup languages, e.g. XSL, XML, HTML}
3/1247 . . . . . {by conversion to printer ready format}
3/1248 . . . . . {by printer language recognition, e.g. PDL, PCL, PDF}
3/125 . . . . . {Page layout or assigning input pages onto output media, e.g. imposition}
3/1251 . . . . . {for continuous media, e.g. web media, rolls}
3/1252 . . . . . {for sheet based media}
3/1253 . . . . . {Configuration of print job parameters, e.g. using UI at the client}
3/1254 . . . . . {Automatic configuration, e.g. by driver}
3/1255 . . . . . {Settings incompatibility, e.g. constraints, user requirements vs. device capabilities}
3/1256 . . . . . {User feedback, e.g. print preview, test print, proofing, pre-flight checks}
3/1257 . . . . . {by using pre-stored settings, e.g. job templates, presets, print styles}
3/1258 . . . . . {by updating job settings at the printer}
3/1259 . . . . . {Print job monitoring, e.g. job status}
3/126 . . . . . {Job scheduling, e.g. queuing, determine appropriate device}
3/1261 . . . . . {by using alternate printing}
3/1262 . . . . . {by grouping or ganging jobs}
3/1263 . . . . . {based on job priority, e.g. re-arranging the order of jobs, e.g. the printing sequence}
3/1264 . . . . . {by assigning post-processing resources}
3/1265 . . . . . {Printing by reference, e.g. retrieving document/image data for a job from a source mentioned in the job}
3/1267 . . . . . {Job repository, e.g. non-scheduled jobs, delay printing}
3/1268 . . . . . {Job submission, e.g. submitting print job order or request not the print data itself}
3/1269 . . . . . {by broadcasting server}
3/127 . . . . . {by using hot folders, e.g. folder for which print settings or print data management rules are set in advance}
3/1271 . . . . . {Job submission at the printing node, e.g. creating a job from a data stored locally or remotely (G06F 3/1238 takes precedence)}
3/1272 . . . . . {Digital storefront, e.g. e-ordering, web2print, submitting a job from a remote submission screen}
3/1273 . . . . . {Print job history, e.g. logging, accounting, tracking}
3/1274 . . . . . {Deleting of print job}
3/1275 . . . . {Print workflow management, e.g. defining or changing a workflow, cross publishing}
3/1276 . . . . . {within a printer driver, e.g. driver resides either on a server or on a client}
3/1277 . . . . . {using filter pipeline, e.g. outside the driver, adding traps}
3/1278 . . . {specifically adapted to adopt a particular infrastructure}
3/1279 . . . . {Controller construction, e.g. aspects of the interface hardware}
3/128 . . . . {Direct printing, e.g. sending document file, using memory stick, printing from a camera}
3/1281 . . . . {Multi engine printer devices, e.g. one entity having multiple output engines}
3/1282 . . . . {High volume printer device}
3/1284 . . . . {Local printer device}
3/1285 . . . . {Remote printer device, e.g. being remote from client or server}
3/1286 . . . . . {via local network}
3/1287 . . . . . {via internet}
3/1288 . . . . . {in client-server-printer device configuration}
3/1289 . . . . . {in server-client-printer device configuration, e.g. the server does not see the printer}

Samsung Ex. 1123, p. 9
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

3/129 . . . . . {in server-printer device-client configuration, e.g. print flow goes from server to printer and then bidirectional from printer to client, i.e. the client does not communicate with the server}
3/1291 . . . . {Pool of printer devices: self-managing printing devices in a network, e.g. without a server}
3/1292 . . . . {Mobile client, e.g. wireless printing}
3/1293 . . {Printer information exchange with computer}
3/1294 . . . {Status or feedback related to information exchange}
3/1295 . . . {Buffering means}
3/1296 . . {Printer job scheduling or printer resource handling}
3/1297 . . {Printer code translation, conversion, emulation, compression; Configuration of printer parameters}
3/1298 . . . {Printer language recognition, e.g. programme control language, page description language}
3/13 . Digital output to plotter {; Cooperation and interconnection of the plotter with other functional units}
3/14 . Digital output to display device {; Cooperation and interconnection of the display device with other functional units}
3/1407 . . {General aspects irrespective of display type, e.g. determination of decimal point position, display with fixed or driving decimal point, suppression of non-significant zeros}
3/1415 . . {with means for detecting differences between the image stored in the host and the images displayed on the displays}
3/1423 . . {controlling a plurality of local displays, e.g. CRT and flat panel display}
3/1431 . . . {using a single graphics controller}
3/1438 . . . {using more than one graphics controller}
3/1446 . . . {display composed of modules, e.g. video walls}
3/1454 . . {involving copying of the display data of a local workstation or window to a remote workstation or window so that an actual copy of the data is displayed simultaneously on two or more displays, e.g. teledisplay}
3/1462 . . . {with means for detecting differences between the image stored in the host and the images displayed on the remote displays}
3/147 . . using display panels
3/1475 . . . {with conversion of CRT control signals to flat panel control signals, e.g. adapting the palette memory}
3/153 . . using cathode-ray tubes
3/16 . Sound input; Sound output (speech processing G10L)
3/162 . . {Interface to dedicated audio devices, e.g. audio drivers, interface to CODECs}
3/165 . . {Management of the audio stream, e.g. setting of volume, audio stream path}
3/167 . . {Audio in a user interface, e.g. using voice commands for navigating, audio feedback}

5/00 Methods or arrangements for data conversion without changing the order or content of the data handled

5/01 . for shifting, e.g. justifying, scaling, normalising {(digital stores in which the information is moved stepwise, e.g. shift-registers G11C 19/00; digital stores in which the information circulates G11C 21/00)}
5/012 . . {in floating-point computations}
5/015 . . {having at least two separately controlled shifting levels, e.g. using shifting matrices (G06F 5/012 takes precedence)}
5/017 . . {using recirculating storage elements}
5/06 . for changing the speed of data flow, i.e. speed regularising {or timing, e.g. delay lines, FIFO buffers; over- or underrun control therefor (G06F 7/78 takes precedence)}
5/065 . . {Partitioned buffers, e.g. allowing multiple independent queues, bidirectional FIFO's}
5/08 . . having a sequence of storage locations, the intermediate ones not being accessible for either enqueue or dequeue operations, e.g. using a shift register {(G06F 5/065 takes precedence; shift registers per se G11C 19/00)}
5/085 . . . {in which the data is recirculated}
5/10 . . having a sequence of storage locations each being individually accessible for both enqueue and dequeue operations, e.g. using random access memory {(G06F 5/065 takes precedence)}
5/12 . . . Means for monitoring the fill level; Means for resolving contention, i.e. conflicts between simultaneous enqueue and dequeue operations
5/14 . . . . for overflow or underflow handling, e.g. full or empty flags
5/16 . . Multiplexed systems, i.e. using two or more similar devices which are alternately accessed for enqueue and dequeue operations, e.g. ping-pong buffers

7/00 Methods or arrangements for processing data by operating upon the order or content of the data handled (logic circuits H03K 19/00)

7/02 . Comparing digital values (G06F 7/06, {G06F 7/22,} G06F 7/38 take precedence)
7/023 . . {adaptive, e.g. self learning}
7/026 . . {Magnitude comparison, i.e. determining the relative order of operands based on their numerical value, e.g. window comparator}
7/06 . Arrangements for sorting, selecting, merging, or comparing data on individual record carriers
7/08 . . Sorting, i.e. grouping record carriers in numerical or other ordered sequence according to the classification of at least some of the information they carry (by merging two or more sets of carriers in ordered sequence G06F 7/16)
7/10 . . Selecting, i.e. obtaining data of one kind from those record carriers which are identifiable by data of a second kind from a mass of ordered or randomly- distributed record carriers
7/12 . . . with provision for printing-out a list of selected items
7/14 . . Merging, i.e. combining at least two sets of record carriers each arranged in the same ordered sequence to produce a single set having the same ordered sequence
7/16 . . . Combined merging and sorting

Samsung Ex. 1123, p. 10
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

7/20 . . Comparing separate sets of record carriers arranged in the same sequence to determine whether at least some of the data in one set is identical with that in the other set or sets
7/22 . Arrangements for sorting or merging computer data on continuous record carriers, e.g. tape, drum, disc
7/24 . . Sorting, i.e. extracting data from one or more carriers, rearranging the data in numerical or other ordered sequence, and rerecording the sorted data on the original carrier or on a different carrier or set of carriers {sorting methods in general}(G06F 7/36 takes precedence)
7/26 . . . the sorted data being recorded on the original record carrier within the same space in which the data had been recorded prior to their sorting, without using intermediate storage
7/32 . . Merging, i.e. combining data contained in ordered sequence on at least two record carriers to produce a single carrier or set of carriers having all the original data in the ordered sequence {merging methods in general}(G06F 7/36 takes precedence)
7/36 . . Combined merging and sorting
7/38 . Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation
7/381 . . {using cryogenic components, e.g. Josephson gates}
7/383 . . {using magnetic or similar elements (parametric and other resonant circuits G06F 7/388)}
7/385 . . . {magnetic bubbles}
7/386 . . . {decimal, radix 20 or 12 (G06F 7/385 takes precedence)}
7/388 . . {using other various devices such as electro-chemical, microwave, surface acoustic wave, neuristor, electron beam switching, resonant, e.g. parametric, ferro-resonant}
7/40 . . using contact-making devices, e.g. electromagnetic relay (G06F 7/46 takes precedence)
7/405 . . . {binary}
7/42 . . . Adding; Subtracting {(G06F 7/405 takes precedence)}
7/44 . . . Multiplying; Dividing {(G06F 7/405 takes precedence)}
7/443 . . . . {by successive additions or subtractions}
7/446 . . . . {by partial product forming (with electric multiplication table)}
7/46 . . using electromechanical counter-type accumulators
7/461 . . . {Adding; subtracting}
7/462 . . . {Multiplying; dividing}
7/463 . . . . {by successive additions or subtractions}
7/465 . . . . {by partial product forming (with electric multiplication table)}
7/466 . . . . {by successive multiplication or division by 2}
7/467 . . . . {by using preset multiples of the multiplicand or the divisor}
7/468 . . . {for evaluating functions by calculation}
7/48 . . using non-contact-making devices, e.g. tube, solid state device; using unspecified devices
7/4806 . . . {Computations with complex numbers}
7/4812 . . . . {Complex multiplication}
7/4818 . . . . {using coordinate rotation digital computer [CORDIC]}
7/4824 . . . {using signed-digit representation}
7/483 . . . Computations with numbers represented by a non-linear combination of denominational numbers, e.g. rational numbers, logarithmic number system or floating-point numbers {(G06F 7/4806, G06F 7/4824, G06F 7/49, G06F 7/491, G06F 7/544 take precedence)}
7/4833 . . . . {Logarithmic number system}
7/4836 . . . . {Computations with rational numbers}
7/485 . . . . Adding; Subtracting {(G06F 7/4833, G06F 7/4836 take precedence)}
7/487 . . . . Multiplying; Dividing {(G06F 7/4833, G06F 7/4836 take precedence)}
7/4873 . . . . . {Dividing}
7/4876 . . . . . {Multiplying}
7/49 . . . Computations with a radix, other than binary, 8, 16 or decimal, e.g. ternary, negative or imaginary radices, mixed radix {non-linear PCM (G06F 7/4824 takes precedence)}
7/491 . . . Computations with decimal numbers {radix 12 or 20. (G06F 7/4824 takes precedence)}
7/4912 . . . . {Adding; Subtracting (G06F 7/492, G06F 7/498 take precedence)}
7/4915 . . . . {Multiplying; Dividing (G06F 7/492, G06F 7/498 take precedence)}
7/4917 . . . . . {Dividing}
7/492 . . . . using a binary weighted representation within each denomination {(G06F 7/498 takes precedence)}
7/4925 . . . . . {Adding; Subtracting (G06F 7/493 takes precedence)}
7/493 . . . . . the representation being the natural binary coded representation, i.e. 8421-code
7/494 . . . . . Adding; Subtracting
7/495 . . . . . in digit-serial fashion, i.e. having a single digit-handling circuit treating all denominations after each other
7/496 . . . . . Multiplying; Dividing
7/498 . . . . using counter-type accumulators
7/4981 . . . . . {Adding; Subtracting}
7/4983 . . . . . {Multiplying; Dividing}
7/4985 . . . . . {by successive additions or subtractions}
7/4986 . . . . . {by successive multiplication or division by 2}
7/4988 . . . . . {by table look-up}
7/499 . . . Denomination or exception handling, e.g. rounding or overflow
7/49905 . . . . {Exception handling}
7/4991 . . . . . {Overflow or underflow}
7/49915 . . . . . {Mantissa overflow or underflow in handling floating-point numbers}
7/49921 . . . . . {Saturation, i.e. clipping the result to a minimum or maximum value}
7/49926 . . . . . {Division by zero}
7/49931 . . . . {Modulo N reduction of final result}
7/49936 . . . . {Normalisation mentioned as feature only}
7/49942 . . . . {Significance control}
7/49947 . . . . . {Rounding}
7/49952 . . . . . {Sticky bit}

Samsung Ex. 1123, p. 11
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

7/49957 . . . . . {Implementation of IEEE-754 Standard}
7/49963 . . . . . {Rounding to nearest (G06F 7/49957 takes precedence)}
7/49968 . . . . . {Rounding towards positive infinity (G06F 7/49957 takes precedence)}
7/49973 . . . . . {Rounding towards negative infinity, e.g. truncation of two's complement numbers (G06F 7/49957 takes precedence)}
7/49978 . . . . . {Rounding towards zero (G06F 7/49957 takes precedence)}
7/49984 . . . . . {Rounding away from zero}
7/49989 . . . . . {Interval arithmetic}
7/49994 . . . . {Sign extension}
7/50 . . . Adding; Subtracting (G06F 7/483 - G06F 7/491, G06F 7/544 - G06F 7/556 take precedence)
7/501 . . . . Half or full adders, i.e. basic adder cells for one denomination
7/5013 . . . . . {using algebraic addition of the input signals, e.g. Kirchhoff adders}
7/5016 . . . . . {forming at least one of the output signals directly from the minterms of the input signals, i.e. with a minimum number of gate levels}
7/502 . . . . . Half adders; Full adders consisting of two cascaded half adders {(G06F 7/5013 takes precedence)}
7/503 . . . . . using carry switching, i.e. the incoming carry being connected directly, or only via an inverter, to the carry output under control of a carry propagate signal
7/504 . . . . in bit-serial fashion, i.e. having a single digit-handling circuit treating all denominations after each other
7/5045 . . . . . {for multiple operands}
7/505 . . . . in bit-parallel fashion, i.e. having a different digit-handling circuit for each denomination
7/5052 . . . . . {using carry completion detection, either over all stages or at sample stages only}
7/5055 . . . . . {in which one operand is a constant, i.e. incrementers or decrementers}
7/5057 . . . . . {using table look-up; using programmable logic arrays (G06F 7/509 takes precedence)}
7/506 . . . . . with simultaneous carry generation for, or propagation over, two or more stages
7/507 . . . . . using selection between two conditionally calculated carry or sum values
7/508 . . . . . using carry look-ahead circuits
7/509 . . . . . for multiple operands, e.g. digital integrators
7/5095 . . . . . {word-serial, i.e. with an accumulator-register}
7/52 . . . Multiplying; Dividing (G06F 7/483 - G06F 7/491, G06F 7/544 take precedence)
7/523 . . . . Multiplying only
7/5235 . . . . . {using indirect methods, e.g. quarter square method, via logarithmic domain}
7/525 . . . . . in serial-serial fashion, i.e. both operands being entered serially (G06F 7/533 takes precedence)
7/527 . . . . . in serial-parallel fashion, i.e. one operand being entered serially and the other in parallel (G06F 7/533 takes precedence)
7/5272 . . . . . {with row wise addition of partial products}
7/5275 . . . . . {using carry save adders}
7/5277 . . . . . {with column wise addition of partial products}
7/53 . . . . . in parallel-parallel fashion, i.e. both operands being entered in parallel (G06F 7/533 takes precedence)
7/5306 . . . . . {with row wise addition of partial products (G06F 7/5324 takes precedence)}
7/5312 . . . . . {using carry save adders}
7/5318 . . . . . {with column wise addition of partial products, e.g. using Wallace tree, Dadda counters (G06F 7/5324 takes precedence)}
7/5324 . . . . . {partitioned, i.e. using repetitively a smaller parallel parallel multiplier or using an array of such smaller multipliers}
7/533 . . . . . Reduction of the number of iteration steps or stages, e.g. using the Booth algorithm, log-sum, odd-even
7/5332 . . . . . {by skipping over strings of zeroes or ones, e.g. using the Booth Algorithm}
7/5334 . . . . . {by using multiple bit scanning, i.e. by decoding groups of successive multiplier bits in order to select an appropriate precalculated multiple of the multiplicand as a partial product}
7/5336 . . . . . {overlapped, i.e. with successive bitgroups sharing one or more bits being recoded into signed digit representation, e.g. using the Modified Booth Algorithm}
7/5338 . . . . . {each bitgroup having two new bits, e.g. 2nd order MBA}
7/535 . . . . Dividing only
7/537 . . . . . Reduction of the number of iteration steps or stages, e.g. using the Sweeny-Robertson-Tocher [SRT] algorithm
7/5375 . . . . . {Non restoring calculation, where each digit is either negative, zero or positive, e.g. SRT;}
7/544 . . . for evaluating functions by calculation {(G06F 7/4824 takes precedence)}
7/5443 . . . . {Sum of products (for applications thereof, see the relevant places, e.g. G06F 17/10, H03H 17/00)}
7/5446 . . . . {using crossaddition algorithms, e.g. CORDIC}
7/548 . . . . Trigonometric functions; Co-ordinate transformations
7/552 . . . . Powers or roots {, e.g. Pythagorean sums}
7/5525 . . . . . {Roots or inverse roots of single operands}
7/556 . . . . Logarithmic or exponential functions

Samsung Ex. 1123, p. 12
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

7/57 . . . Arithmetic logic units [ALU], i.e. arrangements or devices for performing two or more of the operations covered by groups G06F 7/483 – G06F 7/556 or for performing logical operations {(G06F 7/49, G06F 7/491 take precedence)}

7/575 . . . . Basic arithmetic logic units, i.e. devices selectable to perform either addition, subtraction or one of several logical operations, using, at least partially, the same circuitry

7/58 . Random or pseudo-random number generators

7/582 . . {Pseudo-random number generators}

7/584 . . . {using finite field arithmetic, e.g. using a linear feedback shift register}

7/586 . . . {using an integer algorithm, e.g. using linear congruential method}

7/588 . . {Random number generators, i.e. based on natural stochastic processes}

7/60 . Methods or arrangements for performing computations using a digital non-denominational number representation, i.e. number representation without radix; Computing devices using combinations of denominational and non-denominational quantity representations {, e.g. using difunction pulse trains, STEELE computers, phase computers (conversion of digital data to or from non-denominational form H03M 5/00, H03M 7/00)}

7/602 . . {using delta-sigma sequences}

7/605 . . {Additive or subtractive mixing of two pulse rates into one (beat-frequency oscillators H03B 21/00; input circuits of electric counters, e.g. up-down counters H03K 21/00)}

7/607 . . {number-of-ones counters, i.e. devices for counting the number of input lines set to ONE among a plurality of input lines, also called bit counters or parallel counters (for applications thereof, see the relevant places, e.g. G06F 7/49, G06F 7/5013, G06F 7/509, H03M 1/00, H03M 7/20)}

7/62 . . Performing operations exclusively by counting total number of pulses {; Multiplication, division or derived operations using combined denominational and incremental processing by counters, i.e. without column shift (G06F 7/68 takes precedence)}

7/64 . . Digital differential analysers, i.e. computing devices for differentiation, integration or solving differential or integral equations, using pulses representing increments; Other incremental computing devices for solving difference equations (G06F 7/70 takes precedence; differential analysers using hybrid computing techniques G06J 1/02 {; DDA application in numerical control G05B 19/18})

7/66 . . . wherein pulses represent unitary increments only

7/68 . . using pulse rate multipliers or dividers {pulse rate multipliers or dividers per se}(G06F 7/70 takes precedence {; frequency division in electronic watches G04G 3/02; frequency multiplication or division in oscillators H03B 19/00; frequency dividing counters per se H03K 23/00 - H03K 29/00})

7/70 . . using stochastic pulse trains, i.e. randomly occurring pulses the average pulse rates of which represent numbers {(conversion of analogue signals into stochastic pulse trains and vice versa H03M 1/04)}

7/72 . . using residue arithmetic

7/721 . . . {Modular inversion, reciprocal or quotient calculation (G06F 7/724, G06F 7/727, G06F 7/728 take precedence)}

7/722 . . . {Modular multiplication (G06F 7/724, G06F 7/727, G06F 7/728 take precedence)}

7/723 . . . {Modular exponentiation (G06F 7/724, G06F 7/727, G06F 7/728 take precedence)}

7/724 . . . {Finite field arithmetic (for error detection or correction in general H03M 13/00, in computers G06F 11/10)}

7/725 . . . . {over elliptic curves}

7/726 . . . . {Inversion; Reciprocal calculation; Division of elements of a finite field}

7/727 . . . {Modulo N arithmetic, with N being either (2**n)-1,2**n or (2**n)+1, e.g. mod 3, mod 4 or mod 5 (G06F 7/728 takes precedence)}

7/728 . . . {using Montgomery reduction}

7/729 . . . {using representation by a residue number system}

7/74 . Selecting or encoding within a word the position of one or more bits having a specified value, e.g. most or least significant one or zero detection, priority encoders {(with shifting G06F 5/01)}

7/76 . Arrangements for rearranging, permuting or selecting data according to predetermined rules, independently of the content of the data

7/762 . . {having at least two separately controlled rearrangement levels, e.g. multistage interconnection networks (G06F 7/764 - G06F 7/768 take precedence)}

7/764 . . {Masking}

7/766 . . {Generation of all possible permutations}

7/768 . . {Data position reversal, e.g. bit reversal, byte swapping}

7/78 . . for changing the order of data flow, e.g. matrix transposition or LIFO buffers; Overflow or underflow handling therefor

7/785 . . . {having a sequence of storage locations each being individually accessible for both enqueue and dequeue operations, e.g. using a RAM}

8/00 **Arrangements for software engineering** (testing or debugging G06F 11/36; administrative, planning or organisation aspects of software project management G06Q 10/06)

8/10 . Requirements analysis; Specification techniques

8/20 . Software design

8/22 . . {Procedural}

8/24 . . {Object-oriented}

8/30 . Creation or generation of source code

8/31 . . {Programming languages or programming paradigms}

8/311 . . . {Functional or applicative languages; Rewrite languages}

8/312 . . . {List processing, e.g. LISP programming language}

8/313 . . . {Logic programming, e.g. PROLOG programming language}

8/3135 . . . . {Unification or backtracking}

Samsung Ex. 1123, p. 13
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

8/314 . . . {Parallel programming languages (G06F 8/313 takes precedence)}
8/315 . . . {Object-oriented languages}
8/316 . . . {Aspect-oriented programming techniques}
8/33 . . Intelligent editors
8/34 . . Graphical or visual programming
8/35 . . model driven
8/355 . . . {Round-trip engineering}
8/36 . . Software reuse
8/37 . . {Compiler construction; Parser generation}
8/38 . . for implementing user interfaces
8/40 . Transformation of program code
8/41 . . Compilation
8/42 . . . {Syntactic analysis}
8/423 . . . . {Preprocessors}
8/425 . . . . {Lexical analysis}
8/427 . . . . {Parsing}
8/43 . . . {Checking; Contextual analysis}
8/433 . . . . {Dependency analysis; Data or control flow analysis}
8/434 . . . . . {Pointers; Aliasing}
8/436 . . . . {Semantic checking}
8/437 . . . . . {Type checking}
8/44 . . . {Encoding}
8/441 . . . . {Register allocation; Assignment of physical memory space to logical memory space}
8/443 . . . . {Optimisation}
8/4432 . . . . . {Reducing the energy consumption}
8/4434 . . . . . {Reducing the memory space required by the program code}
8/4435 . . . . . {Detection or removal of dead or redundant code}
8/4436 . . . . . {Exlining; Procedural abstraction}
8/4441 . . . . . {Reducing the execution time required by the program code}
8/4442 . . . . . {Reducing the number of cache misses; Data prefetching (cache prefetching G06F 12/0862)}
8/4443 . . . . . {Inlining}
8/445 . . . . {Exploiting fine grain parallelism, i.e. parallelism at instruction level (run-time instruction scheduling G06F 9/3836)}
8/4451 . . . . . {Avoiding pipeline stalls}
8/4452 . . . . . {Software pipelining}
8/447 . . . . {Target code generation}
8/45 . . . {Exploiting coarse grain parallelism in compilation, i.e. parallelism between groups of instructions}
8/451 . . . . {Code distribution (considering CPU load at run-time G06F 9/505; load rebalancing G06F 9/5083)}
8/452 . . . . . {Loops}
8/453 . . . . {Data distribution}
8/454 . . . . . {Consistency (cache consistency protocols in hierarchically structured memory systems G06F 12/0815)}
8/456 . . . . {Parallelism detection}
8/457 . . . . {Communication (intertask communication G06F 9/54)}
8/458 . . . . {Synchronisation, e.g. post-wait, barriers, locks (synchronisation among tasks G06F 9/52)}
8/47 . . . {Retargetable compilers}
8/48 . . . {Incremental compilation (software reuse G06F 8/36)}
8/49 . . . {Partial evaluation}
8/51 . . Source to source
8/52 . . Binary to binary
8/53 . . Decompilation; Disassembly
8/54 . . Link editing before load time
8/60 . Software deployment
8/61 . . Installation
8/62 . . . {Uninstallation}
8/63 . . . {Image based installation; Cloning; Build to order}
8/64 . . . {Retargetable}
8/65 . . Updates (security arrangements therefor G06F 21/57)
8/654 . . . using techniques specially adapted for alterable solid state memories, e.g. for EEPROM or flash memories
8/656 . . . while running
8/658 . . . Incremental updates; Differential updates
8/66 . . . {of program code stored in read-only memory [ROM]}
8/70 . Software maintenance or management
8/71 . . Version control (security arrangements therefor G06F 21/57); Configuration management
8/72 . . Code refactoring
8/73 . . Program documentation
8/74 . . Reverse engineering; Extracting design information from source code
8/75 . . Structural analysis for program understanding
8/751 . . . {Code clone detection}
8/76 . . Adapting program code to run in a different environment; Porting
8/77 . . Software metrics
8/78 . . {Methods to solve the "Year 2000" [Y2K] problem}

9/00 Arrangements for program control, e.g. control units (program control for peripheral devices G06F 13/10)
9/02 . using wired connections, e.g. plugboards
9/04 . using record carriers containing only program instructions (G06F 9/06 takes precedence)
9/06 . using stored programs, i.e. using an internal store of processing equipment to receive or retain programs
9/22 . . Microcontrol or microprogram arrangements
9/223 . . . {Execution means for microinstructions irrespective of the microinstruction function, e.g. decoding of microinstructions and nanoinstructions; timing of microinstructions; programmable logic arrays; delays and fan-out problems}
9/226 . . . {Microinstruction function, e.g. input/output microinstruction; diagnostic microinstruction; microinstruction format}
9/24 . . . Loading of the microprogram
9/26 . . . Address formation of the next micro-instruction (G06F 9/28 takes precedence){; Microprogram storage or retrieval arrangements}
9/261 . . . . {Microinstruction address formation}
9/262 . . . . {Arrangements for next microinstruction selection}
9/264 . . . . . {Microinstruction selection based on results of processing}

Samsung Ex. 1123, p. 14
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

9/265 . . . . . {by address selection on input of storage}
9/267 . . . . . {by instruction selection on output of storage}
9/268 . . . . . {Microinstruction selection not based on processing results, e.g. interrupt, patch, first cycle store, diagnostic programs}
9/28 . . . Enhancement of operational speed, e.g. by using several microcontrol devices operating in parallel
9/30 . . Arrangements for executing machine instructions, e.g. instruction decode (for executing microinstructions G06F 9/22)
9/30003 . . . {Arrangements for executing specific machine instructions}
9/30007 . . . . {to perform operations on data operands}
9/3001 . . . . . {Arithmetic instructions}
9/30014 . . . . . {with variable precision}
9/30018 . . . . . {Bit or string instructions}
9/30021 . . . . . {Compare instructions, e.g. Greater-Than, Equal-To, MINMAX}
9/30025 . . . . . {Format conversion instructions, e.g. Floating-Point to Integer, decimal conversion}
9/30029 . . . . . {Logical and Boolean instructions, e.g. XOR, NOT}
9/30032 . . . . . {Movement instructions, e.g. MOVE, SHIFT, ROTATE, SHUFFLE}
9/30036 . . . . . {Instructions to perform operations on packed data, e.g. vector, tile or matrix operations}
9/30038 . . . . . {using a mask}
9/3004 . . . . {to perform operations on memory}
9/30043 . . . . . {LOAD or STORE instructions; Clear instruction}
9/30047 . . . . . {Prefetch instructions; cache control instructions}
9/3005 . . . . {to perform operations for flow control}
9/30054 . . . . . {Unconditional branch instructions}
9/30058 . . . . . {Conditional branch instructions}
9/30061 . . . . . {Multi-way branch instructions, e.g. CASE}
9/30065 . . . . . {Loop control instructions; iterative instructions, e.g. LOOP, REPEAT}
9/30069 . . . . . {Instruction skipping instructions, e.g. SKIP}
9/30072 . . . . {to perform conditional operations, e.g. using predicates or guards}
9/30076 . . . . {to perform miscellaneous control operations, e.g. NOP}
9/30079 . . . . . {Pipeline control instructions, e.g. multicycle NOP}
9/30083 . . . . . {Power or thermal control instructions}
9/30087 . . . . . {Synchronisation or serialisation instructions}
9/3009 . . . . . {Thread control instructions}
9/30094 . . . {Condition code generation, e.g. Carry, Zero flag}
9/30098 . . . {Register arrangements}
9/30101 . . . . {Special purpose registers}
9/30105 . . . . {Register structure}
9/30109 . . . . . {having multiple operands in a single register}
9/30112 . . . . . {comprising data of variable length}
9/30116 . . . . . {Shadow registers, e.g. coupled registers, not forming part of the register space}
9/3012 . . . . {Organisation of register space, e.g. banked or distributed register file}
9/30123 . . . . . {according to context, e.g. thread buffers}
9/30127 . . . . . {Register windows}
9/3013 . . . . . {according to data content, e.g. floating-point registers, address registers}
9/30134 . . . . . {Register stacks; shift registers}
9/30138 . . . . . {Extension of register space, e.g. register cache}
9/30141 . . . . {Implementation provisions of register files, e.g. ports}
9/30145 . . . {Instruction analysis, e.g. decoding, instruction word fields}
9/30149 . . . . {of variable length instructions}
9/30152 . . . . . {Determining start or end of instruction; determining instruction length}
9/30156 . . . . {Special purpose encoding of instructions, e.g. Gray coding}
9/3016 . . . . {Decoding the operand specifier, e.g. specifier format}
9/30163 . . . . . {with implied specifier, e.g. top of stack}
9/30167 . . . . . {of immediate specifier, e.g. constants}
9/3017 . . . {Runtime instruction translation, e.g. macros}
9/30174 . . . . {for non-native instruction set, e.g. Javabyte, legacy code}
9/30178 . . . . {of compressed or encrypted instructions}
9/30181 . . . {Instruction operation extension or modification}
9/30185 . . . . {according to one or more bits in the instruction, e.g. prefix, sub-opcode}
9/30189 . . . . {according to execution mode, e.g. mode flag}
9/30192 . . . . {according to data descriptor, e.g. dynamic data typing}
9/30196 . . . . {using decoder, e.g. decoder per instruction set, adaptable or programmable decoders}
9/32 . . . Address formation of the next instruction, e.g. by incrementing the instruction counter (G06F 9/38 takes precedence)
9/321 . . . . {Program or instruction counter, e.g. incrementing}
9/322 . . . . {for non-sequential address}
9/323 . . . . . {for indirect branch instructions}
9/324 . . . . . {using program counter relative addressing}
9/325 . . . . . {for loops, e.g. loop detection or loop counter}
9/327 . . . . . {for interrupts}
9/328 . . . . . {for runtime instruction patching}
9/34 . . . Addressing or accessing the instruction operand or the result {; Formation of operand address; Addressing modes (address translation G06F 12/00)}
9/342 . . . . {Extension of operand address space}
9/345 . . . . of multiple operands or results {(addressing multiple banks G06F 12/06)}
9/3455 . . . . . {using stride}
9/35 . . . . Indirect addressing
9/355 . . . . Indexed addressing
9/3552 . . . . . {using wraparound, e.g. modulo or circular addressing}

Samsung Ex. 1123, p. 15
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

9/3555 . . . . . {using scaling, e.g. multiplication of index}
9/3557 . . . . . {using program counter as base address}
9/38 . . . Concurrent instruction execution, e.g. pipeline or look ahead
9/3802 . . . . {Instruction prefetching}
9/3804 . . . . . {for branches, e.g. hedging, branch folding}
9/3806 . . . . . {using address prediction, e.g. return stack, branch history buffer}
9/3808 . . . . . {for instruction reuse, e.g. trace cache, branch target cache}
9/381 . . . . . {Loop buffering}
9/3812 . . . . . {with instruction modification, e.g. store into instruction stream}
9/3814 . . . . . {Implementation provisions of instruction buffers, e.g. prefetch buffer; banks}
9/3816 . . . . . {Instruction alignment, e.g. cache line crossing}
9/3818 . . . . {Decoding for concurrent execution}
9/382 . . . . . {Pipelined decoding, e.g. using predecoding}
9/3822 . . . . . {Parallel decoding, e.g. parallel decode units}
9/3824 . . . . {Operand accessing}
9/3826 . . . . . {Bypassing or forwarding of data results, e.g. locally between pipeline stages or within a pipeline stage}
9/3828 . . . . . {with global bypass, e.g. between pipelines, between clusters}
9/383 . . . . . {Operand prefetching (cache prefetching G06F 12/0862)}
9/3832 . . . . . {Value prediction for operands; operand history buffers}
9/3834 . . . . . {Maintaining memory consistency}
9/3836 . . . . {Instruction issuing, e.g. dynamic instruction scheduling or out of order instruction execution}
9/3838 . . . . . {Dependency mechanisms, e.g. register scoreboarding}
9/384 . . . . . {Register renaming}
9/3842 . . . . . {Speculative instruction execution}
9/3844 . . . . . {using dynamic branch prediction, e.g. using branch history tables}
9/3846 . . . . . {using static prediction, e.g. branch taken strategy}
9/3848 . . . . . {using hybrid branch prediction, e.g. selection between prediction techniques}
9/3851 . . . . . {from multiple instruction streams, e.g. multistreaming}
9/3853 . . . . . {of compound instructions}
9/3854 . . . . {Instruction completion, e.g. retiring, committing or graduating}
9/3856 . . . . . {Reordering of instructions, e.g. using queues or age tags}
9/3858 . . . . . {Result writeback, i.e. updating the architectural state or memory}
9/38585 . . . . . {with result invalidation, e.g. nullification}
9/3861 . . . . {Recovery, e.g. branch miss-prediction, exception handling (error detection or correction G06F 11/00)}
9/3863 . . . . . {using multiple copies of the architectural state, e.g. shadow registers}
9/3865 . . . . . {using deferred exception handling, e.g. exception flags}
9/3867 . . . . {using instruction pipelines}
9/3869 . . . . . {Implementation aspects, e.g. pipeline latches; pipeline synchronisation and clocking}
9/3871 . . . . . {Asynchronous instruction pipeline, e.g. using handshake signals between stages}
9/3873 . . . . . {Variable length pipelines, e.g. elastic pipeline}
9/3875 . . . . . {Pipelining a single stage, e.g. superpipelining}
9/3877 . . . . {using a slave processor, e.g. coprocessor (peripheral processor G06F 13/12; vector processor G06F 15/8053)}
9/3879 . . . . . {for non-native instruction execution, e.g. executing a command; for Java instruction set}
9/3881 . . . . . {Arrangements for communication of instructions and data}
2009/3883 . . . . . {Two-engine architectures, i.e. stand-alone processor acting as a slave processor}
9/3885 . . . . {using a plurality of independent parallel functional units}
9/3887 . . . . . {controlled by a single instruction for multiple data lanes [SIMD]}
9/38873 . . . . . {Iterative single instructions for multiple data lanes [SIMD]}
9/38875 . . . . . {for adaptable or variable architectural vector length}
9/3888 . . . . . {controlled by a single instruction for multiple threads [SIMT] in parallel}
9/38885 . . . . . {Divergence aspects}
9/3889 . . . . . {controlled by multiple instructions, e.g. MIMD, decoupled access or execute}
9/3891 . . . . . {organised in groups of units sharing resources, e.g. clusters}
9/3893 . . . . . {controlled in tandem, e.g. multiplier-accumulator}
9/3895 . . . . . {for complex operations, e.g. multidimensional or interleaved address generators, macros}
9/3897 . . . . . {with adaptable data path}
9/44 . . Arrangements for executing specific programs
9/4401 . . . Bootstrapping (security arrangements therefor G06F 21/57)
9/4403 . . . . {Processor initialisation}
9/4405 . . . . {Initialisation of multiprocessor systems}
9/4406 . . . . {Loading of operating system}
9/4408 . . . . . {Boot device selection}
9/441 . . . . . {Multiboot arrangements, i.e. selecting an operating system to be loaded}
9/4411 . . . . {Configuring for operating with peripheral devices; Loading of device drivers}
9/4413 . . . . . {Plug-and-play [PnP]}
9/4415 . . . . . {Self describing peripheral devices}
9/4416 . . . . {Network booting; Remote initial program loading [RIPL]}
9/4418 . . . . {Suspend and resume; Hibernate and awake}
9/442 . . . . {Shutdown}

Samsung Ex. 1123, p. 16
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

9/445 . . . Program loading or initiating (bootstrapping G06F 9/4401; security arrangements for program loading or initiating G06F 21/57)
9/44505 . . . . {Configuring for program initiating, e.g. using registry, configuration files}
9/4451 . . . . . {User profiles; Roaming}
9/44521 . . . . {Dynamic linking or loading; Link editing at or after load time, e.g. Java class loading}
9/44526 . . . . . {Plug-ins; Add-ons}
9/44536 . . . . {Selecting among different versions}
9/44542 . . . . . {Retargetable}
9/44547 . . . . . . {Fat binaries}
9/44552 . . . . {Conflict resolution, i.e. enabling coexistence of conflicting executables}
9/44557 . . . . {Code layout in executable memory}
9/44563 . . . . . {Sharing}
9/44568 . . . . {Immediately runnable code}
9/44573 . . . . . {Execute-in-place [XIP]}
9/44578 . . . . . {Preparing or optimising for loading}
9/44584 . . . . . {Portable applications, i.e. making applications self-contained, e.g. U3 standard}
9/44589 . . . . {Program code verification, e.g. Java bytecode verification, proof-carrying code (high-level semantic checks G06F 8/43; prevention of errors by analysis, debugging or testing of software G06F 11/36)}
9/44594 . . . . {Unloading}
9/448 . . . Execution paradigms, e.g. implementations of programming paradigms
9/4482 . . . . {Procedural}
9/4484 . . . . . {Executing subprograms}
9/4486 . . . . . {Formation of subprogram jump address}
9/4488 . . . . {Object-oriented}
9/449 . . . . . {Object-oriented method invocation or resolution}
9/4491 . . . . . {Optimising based on receiver type}
9/4492 . . . . . {Inheritance}
9/4493 . . . . . {Object persistence}
9/4494 . . . . {data driven}
9/4496 . . . . {Unification in logic programming}
9/4498 . . . . {Finite state machines}
9/451 . . . Execution arrangements for user interfaces
9/452 . . . . {Remote windowing, e.g. X-Window System, desktop virtualisation (protocols for virtual reality H04L 67/131)}
9/453 . . . . {Help systems}
9/454 . . . . {Multi-language systems; Localisation; Internationalisation}
9/455 . . . Emulation; Interpretation; Software simulation, e.g. virtualisation or emulation of application or operating system execution engines
9/45504 . . . . {Abstract machines for programme code execution, e.g. Java virtual machine [JVM], interpreters, emulators}
9/45508 . . . . . {Runtime interpretation or emulation, e g. emulator loops, bytecode interpretation}
9/45512 . . . . . {Command shells}
9/45516 . . . . . {Runtime code conversion or optimisation}
9/4552 . . . . . {Involving translation to a different instruction set architecture, e.g. just-in-time translation in a JVM}
9/45525 . . . . . {Optimisation or modification within the same instruction set architecture, e.g. HP Dynamo}
9/45529 . . . . . {Embedded in an application, e.g. JavaScript in a Web browser}
9/45533 . . . . {Hypervisors; Virtual machine monitors}
9/45537 . . . . . {Provision of facilities of other operating environments, e.g. WINE (I/O emulation G06F 13/105)}
9/45541 . . . . . {Bare-metal, i.e. hypervisor runs directly on hardware}
9/45545 . . . . . {Guest-host, i.e. hypervisor is an application program itself, e.g. VirtualBox}
9/4555 . . . . . {Para-virtualisation, i.e. guest operating system has to be modified}
9/45554 . . . . . {Instruction set architectures of guest OS and hypervisor or native processor differ, e.g. Bochs or VirtualPC on PowerPC MacOS}
9/45558 . . . . . {Hypervisor-specific management and integration aspects}
2009/45562 . . . . . {Creating, deleting, cloning virtual machine instances}
2009/45566 . . . . . {Nested virtual machines}
2009/4557 . . . . . {Distribution of virtual machine instances; Migration and load balancing}
2009/45575 . . . . . {Starting, stopping, suspending or resuming virtual machine instances}
2009/45579 . . . . . {I/O management, e.g. providing access to device drivers or storage}
2009/45583 . . . . . {Memory management, e.g. access or allocation}
2009/45587 . . . . . {Isolation or security of virtual machine instances}
2009/45591 . . . . . {Monitoring or debugging support}
2009/45595 . . . . . {Network integration; Enabling network access in virtual machine instances}
9/46 . . Multiprogramming arrangements
9/461 . . . {Saving or restoring of program or task context}
9/462 . . . . {with multiple register sets}
9/463 . . . . {Program control block organisation}
9/465 . . . {Distributed object oriented systems (remote method invocation [RMI] G06F 9/548)}
9/466 . . . {Transaction processing}
9/467 . . . . {Transactional memory (G06F 9/528 takes precedence)}
9/468 . . . {Specific access rights for resources, e.g. using capability register}
9/48 . . . Program initiating; Program switching, e.g. by interrupt
9/4806 . . . . {Task transfer initiation or dispatching}
9/4812 . . . . . {by interrupt, e.g. masked}
9/4818 . . . . . {Priority circuits therefor}
9/4825 . . . . . {Interrupt from clock, e.g. time of day}
9/4831 . . . . . {with variable priority}
9/4837 . . . . . {time dependent}
9/4843 . . . . . {by program, e.g. task dispatcher, supervisor, operating system}

Samsung Ex. 1123, p. 17
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

9/485 . . . . . {Task life-cycle, e.g. stopping, restarting, resuming execution (G06F 9/4881 takes precedence)}
9/4856 . . . . . {resumption being on a different machine, e.g. task migration, virtual machine migration (G06F 9/5088 takes precedence)}
9/4862 . . . . . {the task being a mobile agent, i.e. specifically designed to migrate}
9/4868 . . . . . {with creation or replication}
9/4875 . . . . . {with migration policy, e.g. auction, contract negotiation}
9/4881 . . . . . {Scheduling strategies for dispatcher, e.g. round robin, multi-level priority queues}
9/4887 . . . . . {involving deadlines, e.g. rate based, periodic}
9/4893 . . . . . {taking into account power or heat criteria (power management in computers in general G06F 1/3203; thermal management in computers in general G06F 1/206)}
9/50 . . . Allocation of resources, e.g. of the central processing unit [CPU]
9/5005 . . . . {to service a request}
9/5011 . . . . . {the resources being hardware resources other than CPUs, Servers and Terminals}
9/5016 . . . . . {the resource being the memory}
9/5022 . . . . . {Mechanisms to release resources}
9/5027 . . . . . {the resource being a machine, e.g. CPUs, Servers, Terminals}
9/5033 . . . . . {considering data affinity}
9/5038 . . . . . {considering the execution order of a plurality of tasks, e.g. taking priority or time dependency constraints into consideration (scheduling strategies G06F 9/4881 and subgroups)}
9/5044 . . . . . {considering hardware capabilities}
9/505 . . . . . {considering the load}
9/5055 . . . . . {considering software capabilities, i.e. software resources associated or available to the machine}
9/5061 . . . . {Partitioning or combining of resources}
9/5066 . . . . . {Algorithms for mapping a plurality of inter-dependent sub-tasks onto a plurality of physical CPUs (mappping at compile time, see G06F 8/451)}
9/5072 . . . . . {Grid computing}
9/5077 . . . . . {Logical partitioning of resources; Management or configuration of virtualized resources (specific details on emulation or internal functioning of virtual machines G06F 9/455)}
9/5083 . . . . {Techniques for rebalancing the load in a distributed system}
9/5088 . . . . . {involving task migration}
9/5094 . . . . {where the allocation takes into account power or heat criteria (power management in computers in general G06F 1/3203; thermal management in computers in general G06F 1/206)}
9/52 . . . Program synchronisation; Mutual exclusion, e.g. by means of semaphores
9/522 . . . . {Barrier synchronisation}
9/524 . . . . {Deadlock detection or avoidance}
9/526 . . . . {Mutual exclusion algorithms}
9/528 . . . . . {by using speculative mechanisms}
9/54 . . . Interprogram communication
9/541 . . . . {via adapters, e.g. between incompatible applications}
9/542 . . . . {Event management; Broadcasting; Multicasting; Notifications}
9/543 . . . . {User-generated data transfer, e.g. clipboards, dynamic data exchange [DDE], object linking and embedding [OLE]}
9/544 . . . . {Buffers; Shared memory; Pipes}
9/545 . . . . {where tasks reside in different layers, e.g. user- and kernel-space}
9/546 . . . . {Message passing systems or structures, e.g. queues}
9/547 . . . . {Remote procedure calls [RPC]; Web services}
9/548 . . . . . {Object oriented; Remote method invocation [RMI] (non-remote method invocation G06F 9/449)}

11/00 Error detection; Error correction; Monitoring (error detection, correction or monitoring in information storage based on relative movement between record carrier and transducer G11B 20/18; monitoring, i.e. supervising the progress of recording or reproducing G11B 27/36; in static stores G11C 29/00)

NOTE

In this group the indexing codes of G06F 1/00 - G06F 15/00 are added

11/002 . {protecting against parasitic influences, e.g. noise, temperatures}

WARNING

This group is no longer used for the classification of new documents as from January 1, 2011. The documents are classified in G06F 11/07 and subgroups according to the features used for protecting

11/004 . {Error avoidance (G06F 11/07 and subgroups take precedence)}
11/006 . {Identification (G06F 11/2289 takes precedence)}
11/008 . {Reliability or availability analysis}
11/07 . Responding to the occurrence of a fault, e.g. fault tolerance
11/0703 . . {Error or fault processing not based on redundancy, i.e. by taking additional measures to deal with the error or fault not making use of redundancy in operation, in hardware, or in data representation}
11/0706 . . . {the processing taking place on a specific hardware platform or in a specific software environment}
11/0709 . . . . {in a distributed system consisting of a plurality of standalone computer nodes, e.g. clusters, client-server systems}
11/0712 . . . . {in a virtual computing platform, e.g. logically partitioned systems}
11/0715 . . . . {in a system implementing multitasking (multitasking per se G06F 9/46)}
11/0718 . . . . {in an object-oriented system}

Samsung Ex. 1123, p. 18
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

11/0721 . . . . {within a central processing unit [CPU]}
11/0724 . . . . . {in a multiprocessor or a multi-core unit (multiprocessors per se G06F 15/80)}
11/0727 . . . . {in a storage system, e.g. in a DASD or network based storage system (drivers for digital recording or reproducing units G06F 3/06; circuits for error detection or correction within digital recording or reproducing units G11B 20/18; for distributed storage of data in networks, e.g. transport arrangements for network file system [NFS], storage area networks [SAN] or network attached storage [NAS], H04L 67/1097)}
11/073 . . . . {in a memory management context, e.g. virtual memory or cache management (memory management G06F 12/00; testing of static memory units G11C 29/00)}
11/0733 . . . . {in a data processing system embedded in an image processing device, e.g. printer, facsimile, scanner}
11/0736 . . . . {in functional embedded systems, i.e. in a data processing system designed as a combination of hardware and software dedicated to performing a certain function (testing or monitoring of automated control systems G05B 23/02)}
11/0739 . . . . . {in a data processing system embedded in automotive or aircraft systems}
11/0742 . . . . . {in a data processing system embedded in a mobile device, e.g. mobile phones, handheld devices}
11/0745 . . . . {in an input/output transactions management context (input/output processing in general G06F 13/00)}
11/0748 . . . . {in a remote unit communicating with a single-box computer node experiencing an error/fault (remote testing G06F 11/2294)}
11/0751 . . . {Error or fault detection not based on redundancy (power supply failures G06F 1/30; network fault management H04L 41/06)}
11/0754 . . . . {by exceeding limits}
11/0757 . . . . . {by exceeding a time limit, i.e. time-out, e.g. watchdogs}
11/076 . . . . . {by exceeding a count or rate limit, e.g. word- or bit count limit}
11/0763 . . . . {by bit configuration check, e.g. of formats or tags}
11/0766 . . . {Error or fault reporting or storing}
11/0769 . . . . {Readable error formats, e.g. cross-platform generic formats, human understandable formats}
11/0772 . . . . {Means for error signaling, e.g. using interrupts, exception flags, dedicated error registers}
11/0775 . . . . {Content or structure details of the error report, e.g. specific table structure, specific error fields}
11/0778 . . . . {Dumping, i.e. gathering error/state information after a fault for later diagnosis}
11/0781 . . . . {Error filtering or prioritizing based on a policy defined by the user or on a policy defined by a hardware/software module, e.g. according to a severity level}
11/0784 . . . . {Routing of error reports, e.g. with a specific transmission path or data flow}
11/0787 . . . . {Storage of error reports, e.g. persistent data storage, storage using memory protection}
11/079 . . . {Root cause analysis, i.e. error or fault diagnosis (in a hardware test environment G06F 11/22; in a software test environment G06F 11/36)}
11/0793 . . . {Remedial or corrective actions (recovery from an exception in an instruction pipeline G06F 9/3861; by retry G06F 11/1402; for recovering from a failure of a protocol instance or entity H04L 69/40)}
11/0796 . . {Safety measures, i.e. ensuring safe condition in the event of error, e.g. for controlling element}
11/08 . . Error detection or correction by redundancy in data representation, e.g. by using checking codes
11/085 . . . {using codes with inherent redundancy, e.g. n-out-of-m codes}
11/10 . . . Adding special bits or symbols to the coded information, e.g. parity check, casting out 9's or 11's
11/1004 . . . . {to protect a block of data words, e.g. CRC or checksum (G06F 11/1076 takes precedence; security arrangements for protecting computers or computer systems against unauthorized activity G06F 21/00)}
11/1008 . . . . {in individual solid state devices (G06F 11/1004 takes precedence)}
11/1012 . . . . . {using codes or arrangements adapted for a specific type of error (G06F 11/1048 takes precedence)}
11/1016 . . . . . {Error in accessing a memory location, i.e. addressing error}
11/102 . . . . . {Error in check bits}
11/1024 . . . . . {Identification of the type of error}
11/1028 . . . . . {Adjacent errors, e.g. error in n-bit (n>1) wide storage units, i.e. package error}
11/1032 . . . . . {Simple parity}
11/1036 . . . . . {Unidirectional errors}
11/104 . . . . . {using arithmetic codes, i.e. codes which are preserved during operation, e.g. modulo 9 or 11 check}
11/1044 . . . . . {with specific ECC/EDC distribution}
11/1048 . . . . . {using arrangements adapted for a specific error detection or correction feature}
11/1052 . . . . . {Bypassing or disabling error detection or correction}
11/1056 . . . . . {Updating check bits on partial write, i.e. read/modify/write}
11/106 . . . . . {Correcting systematically all correctable errors, i.e. scrubbing}
11/1064 . . . . . {in cache or content addressable memories}
11/1068 . . . . . {in sector programmable memories, e.g. flash disk (G06F 11/1072 takes precedence)}
11/1072 . . . . . {in multilevel memories}
11/1076 . . . . {Parity data used in redundant arrays of independent storages, e.g. in RAID systems}
11/108 . . . . . {Parity data distribution in semiconductor storages, e.g. in SSD}

Samsung Ex. 1123, p. 19
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

11/1084 . . . . . {Degraded mode, e.g. caused by single or multiple storage removals or disk failures}
11/1088 . . . . . {Reconstruction on already foreseen single or plurality of spare disks}
11/1092 . . . . . {Rebuilding, e.g. when physically replacing a failing disk}
11/1096 . . . . . {Parity calculation or recalculation after configuration or reconfiguration of the system}
11/14 . . Error detection or correction of the data by redundancy in operation (G06F 11/16 takes precedence)
11/1402 . . . {Saving, restoring, recovering or retrying}
11/1405 . . . . {at machine instruction level}
11/1407 . . . . . {Checkpointing the instruction stream}
11/141 . . . . . {for bus or memory accesses}
11/1415 . . . . {at system level}
11/1417 . . . . . {Boot up procedures}
11/142 . . . . . {Reconfiguring to eliminate the error (group management mechanisms in a peer-to-peer network H04L 67/1044)}
11/1423 . . . . . {by reconfiguration of paths}
11/1425 . . . . . {by reconfiguration of node membership}
11/1428 . . . . . {with loss of hardware functionality}
11/143 . . . . . {with loss of software functionality}
11/1433 . . . . . {during software upgrading}
11/1435 . . . . . {using file system or storage system metadata}
11/1438 . . . . . {Restarting or rejuvenating}
11/1441 . . . . . {Resetting or repowering}
11/1443 . . . . . {Transmit or communication errors}
11/1446 . . . . {Point-in-time backing up or restoration of persistent data}
11/1448 . . . . . {Management of the data involved in backup or backup restore}
11/1451 . . . . . {by selection of backup contents}
11/1453 . . . . . {using de-duplication of the data}
11/1456 . . . . . {Hardware arrangements for backup}
11/1458 . . . . . {Management of the backup or restore process}
11/1461 . . . . . {Backup scheduling policy}
11/1464 . . . . . {for networked environments}
11/1466 . . . . . {to make the backup process non-disruptive}
11/1469 . . . . . {Backup restoration techniques}
11/1471 . . . . {involving logging of persistent data for recovery}
11/1474 . . . . {in transactions (G06F 16/20 takes precedence)}
11/1476 . . . {in neural networks}
11/1479 . . . {Generic software techniques for error detection or fault masking}
11/1482 . . . . {by means of middleware or OS functionality}
11/1484 . . . . . {involving virtual machines}
11/1487 . . . . {using N-version programming}
11/1489 . . . . {through recovery blocks}
11/1492 . . . . {by run-time replication performed by the application software}
11/1494 . . . . . {N-modular type}
11/1497 . . . {Details of time redundant execution on a single processing unit}
11/16 . . Error detection or correction of the data by redundancy in hardware
11/1604 . . . {where the fault affects the clock signals of a processing unit and the redundancy is at or within the level of clock signal generation hardware}
11/1608 . . . {Error detection by comparing the output signals of redundant hardware (G06F 11/1629, G06F 11/1666 take precedence; error detection or correction in information storage based on relative movement between record carrier and transducer G11B 20/18; checking static stores for correct operation G11C 29/00; for logic circuits H03K 19/003, H03K 19/007; for pulse counters or frequency dividers H03K 21/40)}
11/1612 . . . . {where the redundant component is persistent storage}
11/1616 . . . . {where the redundant component is an I/O device or an adapter therefor}
11/162 . . . . . {Displays}
11/1625 . . . . {in communications, e.g. transmission, interfaces}
11/1629 . . . {Error detection by comparing the output of redundant processing systems}
11/1633 . . . . {using mutual exchange of the output between the redundant processing components}
11/1637 . . . . {using additional compare functionality in one or some but not all of the redundant processing components}
11/1641 . . . . {where the comparison is not performed by the redundant processing components}
11/1645 . . . . . {and the comparison itself uses redundant hardware}
11/165 . . . . {with continued operation after detection of the error}
11/1654 . . . . {where the output of only one of the redundant processing components can drive the attached hardware, e.g. memory or I/O}
11/1658 . . . {Data re-synchronization of a redundant component, or initial sync of replacement, additional or spare unit}
11/1662 . . . . {the resynchronized component or unit being a persistent storage device (re-synchronization of failed mirror storage G06F 11/2082; rebuild or reconstruction of parity RAID storage G06F 11/1008)}
11/1666 . . . {where the redundant component is memory or memory area}
11/167 . . . . {Error detection by comparing the memory output}
11/1675 . . . {Temporal synchronisation or re-synchronisation of redundant processing components}
11/1679 . . . . {at clock signal level}
11/1683 . . . . {at instruction level}
11/1687 . . . . {at event level, e.g. by interrupt or result of polling}
11/1691 . . . . {using a quantum}
11/1695 . . . {which are operating with time diversity}
11/18 . . . using passive fault-masking of the redundant circuits {(error detection by comparing the output of redundant processing systems with continued operation after detection of the error G06F 11/165)}

Samsung Ex. 1123, p. 20
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

11/181 . . . . {Eliminating the failing redundant component}
11/182 . . . . {based on mutual exchange of the output between redundant processing components}
11/183 . . . . {by voting, the voting not being performed by the redundant components}
11/184 . . . . . {where the redundant components implement processing functionality}
11/185 . . . . . . {and the voting is itself performed redundantly}
11/186 . . . . {Passive fault masking when reading multiple copies of the same data}
11/187 . . . . {Voting techniques}
11/188 . . . . . {where exact match is not required}
11/20 . . . using active fault-masking, e.g. by switching out faulty elements or by switching in spare elements
11/2002 . . . . {where interconnections or communication control functionality are redundant (flexible arrangements for bus networks involving redundancy H04L 12/40176)}
11/2005 . . . . . {using redundant communication controllers}
11/2007 . . . . . {using redundant communication media}
11/201 . . . . . {between storage system components}
11/2012 . . . . . {and using different communication protocols}
11/2015 . . . . {Redundant power supplies (power supply failure G06F 1/30)}
11/2017 . . . . {where memory access, memory control or I/O control functionality is redundant (redundant communication control functionality G06F 11/2005; redundant storage control functionality G06F 11/2089)}
11/202 . . . . {where processing functionality is redundant (redundant communication control functionality G06F 11/2005, redundant storage control functionality G06F 11/2089)}
11/2023 . . . . . {Failover techniques}
11/2025 . . . . . {using centralised failover control functionality}
11/2028 . . . . . {eliminating a faulty processor or activating a spare}
11/203 . . . . . {using migration}
11/2033 . . . . . {switching over of hardware resources}
11/2035 . . . . . {without idle spare hardware}
11/2038 . . . . . {with a single idle spare processing component}
11/2041 . . . . . {with more than one idle spare processing component}
11/2043 . . . . . {where the redundant components share a common memory address space}
11/2046 . . . . . {where the redundant components share persistent storage (G06F 11/2043 takes precedence)}
11/2048 . . . . . {where the redundant components share neither address space nor persistent storage}
11/2051 . . . . . {in regular structures}
11/2053 . . . . {where persistent mass storage functionality or persistent mass storage control functionality is redundant (error detection or correction in information storage based on relative movement between record carrier and transducer G11B 20/18)}
11/2056 . . . . . {by mirroring}
11/2058 . . . . . {using more than 2 mirrored copies}
11/2061 . . . . . {combined with de-clustering of data}
11/2064 . . . . . {while ensuring consistency}
11/2066 . . . . . {Optimisation of the communication load}
11/2069 . . . . . {Management of state, configuration or failover}
11/2071 . . . . . {using a plurality of controllers}
11/2074 . . . . . {Asynchronous techniques}
11/2076 . . . . . {Synchronous techniques}
11/2079 . . . . . {Bidirectional techniques}
11/2082 . . . . . {Data synchronisation}
11/2084 . . . . . {on the same storage unit}
11/2087 . . . . . {with a common controller}
11/2089 . . . . . {Redundant storage control functionality}
11/2092 . . . . . {Techniques of failing over between control units}
11/2094 . . . . . {Redundant storage or storage space (G06F 11/2056 takes precedence)}
11/2097 . . . . {maintaining the standby controller/processing unit updated (initialisation or re-synchronisation thereof G06F 11/1658 and subgroups)}
11/22 . Detection or location of defective computer hardware by testing during standby operation or during idle time, e.g. start-up testing
11/2205 . . {using arrangements specific to the hardware being tested}
11/221 . . . {to test buses, lines or interfaces, e.g. stuck-at or open line faults}
11/2215 . . . {to test error correction or detection circuits}
11/2221 . . . {to test input/output devices or peripheral units}
11/2226 . . . {to test ALU}
11/2231 . . . {to test interrupt circuits}
11/2236 . . . {to test CPU or processors}
11/2242 . . . . {in multi-processor systems, e.g. one processor becoming the test master (G06F 11/2736 takes precedence)}
11/2247 . . {Verification or detection of system hardware configuration}
11/2252 . . {using fault dictionaries}
11/2257 . . {using expert systems}
11/2263 . . {using neural networks}
11/2268 . . {Logging of test results}
11/2273 . . {Test methods}
11/2284 . . {by power-on test, e.g. power-on self test [POST]}
11/2289 . . {by configuration test}
11/2294 . . {by remote test}
11/24 . . Marginal checking {or other specified testing methods not covered by G06F 11/26, e.g. race tests}
11/25 . . Testing of logic operation, e.g. by logic analysers
11/26 . . Functional testing

Samsung Ex. 1123, p. 21
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

11/261 . . . {by simulating additional hardware, e.g. fault simulation}
11/263 . . . Generation of test inputs, e.g. test vectors, patterns or sequences {; with adaptation of the tested hardware for testability with external testers}
11/2635 . . . . {using a storage for the test inputs, e.g. test ROM, script files}
11/267 . . . Reconfiguring circuits for testing, e.g. LSSD, partitioning
11/27 . . . Built-in tests
11/273 . . . Tester hardware, i.e. output processing circuits {(G06F 11/263 takes precedence)}
11/2733 . . . . {Test interface between tester and unit under test}
11/2736 . . . . {using a dedicated service processor for test}
11/277 . . . . with comparison between actual response and known fault-free response
11/28 . by checking the correct order of processing (G06F 11/08 - G06F 11/26 take precedence; monitoring patterns of pulse trains H03K 5/19)
11/30 . Monitoring
11/3003 . . {Monitoring arrangements specially adapted to the computing system or computing system component being monitored}
11/3006 . . . {where the computing system is distributed, e.g. networked systems, clusters, multiprocessor systems (multiprogramming arrangements G06F 9/46; allocation of resources G06F 9/50)}
11/301 . . . {where the computing system is a virtual computing platform, e.g. logically partitioned systems (virtual machines G06F 9/45533; logical partitioning of resources G06F 9/5077)}
11/3013 . . . {where the computing system is an embedded system, i.e. a combination of hardware and software dedicated to perform a certain function in mobile devices, printers, automotive or aircraft systems (testing or monitoring of control systems or parts thereof G05B 23/02)}
11/3017 . . . {where the computing system is implementing multitasking (multiprogramming arrangements G06F 9/46; allocation of resources G06F 9/50)}
11/302 . . . {where the computing system component is a software system}
11/3024 . . . {where the computing system component is a central processing unit [CPU]}
11/3027 . . . {where the computing system component is a bus}
11/3031 . . . {where the computing system component is a motherboard or an expansion card}
11/3034 . . . {where the computing system component is a storage system, e.g. DASD based or network based (digital input from or digital output to record carriers G06F 3/06; digital recording or reproducing G11B 20/18; for distributed storage of data in networks, e.g. transport arrangements for network file system [NFS], storage area networks [SAN] or network attached storage [NAS], H04L 67/1097)}
11/3037 . . . {where the computing system component is a memory, e.g. virtual memory, cache (accessing, addressing or allocating within memory systems or architectures G06F 12/00; checking stores for correct operation G11C 29/00)}
11/3041 . . . {where the computing system component is an input/output interface (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units G06F 13/00)}
11/3044 . . . {where the computing system component is the mechanical casing of the computing system}
11/3048 . . . {where the topology of the computing system or computing system component explicitly influences the monitoring activity, e.g. serial, hierarchical systems}
11/3051 . . {Monitoring arrangements for monitoring the configuration of the computing system or of the computing system component, e.g. monitoring the presence of processing resources, peripherals, I/O links, software programs (verification or detection of system hardware configuration G06F 11/2247)}
11/3055 . . {Monitoring arrangements for monitoring the status of the computing system or of the computing system component, e.g. monitoring if the computing system is on, off, available, not available (error or fault processing without redundancy G06F 11/0703; error detection or correction by redundancy in data representation G06F 11/08; error detection or correction by redundancy in operation G06F 11/14; error detection or correction by redundancy in hardware G06F 11/16)}
11/3058 . . {Monitoring arrangements for monitoring environmental properties or parameters of the computing system or of the computing system component, e.g. monitoring of power, currents, temperature, humidity, position, vibrations (thermal management in cooling arrangements of a computing system G06F 1/206)}
11/3062 . . . {where the monitored property is the power consumption (power management in a computing system G06F 1/3203)}
11/3065 . . {Monitoring arrangements determined by the means or processing involved in reporting the monitored data (error or fault reporting or logging G06F 11/0766)}
11/3068 . . . {where the reporting involves data format conversion}
11/3072 . . . {where the reporting involves data filtering, e.g. pattern matching, time or event triggered, adaptive or policy-based reporting}
11/3075 . . . . {the data filtering being achieved in order to maintain consistency among the monitored data, e.g. ensuring that the monitored data belong to the same timeframe, to the same system or component}
11/3079 . . . . {the data filtering being achieved by reporting only the changes of the monitored data}
11/3082 . . . . {the data filtering being achieved by aggregating or compressing the monitored data}

Samsung Ex. 1123, p. 22
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

11/3086 . . . {where the reporting involves the use of self describing data formats, i.e. metadata, markup languages, human readable formats}
11/3089 . . {Monitoring arrangements determined by the means or processing involved in sensing the monitored data, e.g. interfaces, connectors, sensors, probes, agents (software debugging using additional hardware using a specific debug interface G06F 11/3656; performance evaluation by tracing or monitoring G06F 11/3466)}
11/3093 . . . {Configuration details thereof, e.g. installation, enabling, spatial arrangement of the probes}
11/3096 . . . {wherein the means or processing minimize the use of computing system or of computing system component resources, e.g. non-intrusive monitoring which minimizes the probe effect: sniffing, intercepting, indirectly deriving the monitored data from other directly available data}
11/32 . . with visual {or acoustical} indication of the functioning of the machine
11/321 . . . {Display for diagnostics, e.g. diagnostic result display, self-test user interface}
11/322 . . . . {Display of waveforms, e.g. of logic analysers (G06F 11/323 takes precedence)}
11/323 . . . {Visualisation of programs or trace data}
11/324 . . . {Display of status information}
11/325 . . . . {by lamps or LED's}
11/326 . . . . . {for error or online/offline status}
11/327 . . . . {Alarm or error message display}
11/328 . . . . {Computer systems status display (G06F 11/327 takes precedence)}
11/34 . . Recording or statistical evaluation of computer activity, e.g. of down time, of input/output operation {; Recording or statistical evaluation of user activity, e.g. usability assessment}
11/3404 . . . {for parallel or distributed programming}
11/3409 . . . {for performance assessment}
11/3414 . . . . {Workload generation, e.g. scripts, playback}
11/3419 . . . . {by assessing time}
11/3423 . . . . . {where the assessed time is active or idle time}
11/3428 . . . . {Benchmarking}
11/3433 . . . . {for load management (allocation of a server based on load conditions G06F 9/505; load rebalancing G06F 9/5083; redistributing the load in a network by a load balancer H04L 67/1029)}
11/3438 . . . {monitoring of user actions (tracking the activity of the user H04L 67/535)}
11/3442 . . . {for planning or managing the needed capacity}
11/3447 . . . {Performance evaluation by modeling}
11/3452 . . . {Performance evaluation by statistical analysis}
11/3457 . . . {Performance evaluation by simulation}
11/3461 . . . . {Trace driven simulation}
11/3466 . . . {Performance evaluation by tracing or monitoring}
11/3471 . . . . {Address tracing}
11/3476 . . . . {Data logging (G06F 11/14, G06F 11/2205 take precedence)}
11/348 . . . . {Circuit details, i.e. tracer hardware}
11/3485 . . . . {for I/O devices}
11/349 . . . . {for interfaces, buses}
11/3495 . . . . {for systems}
11/36 . Prevention of errors by analysis, debugging or testing of software
11/3604 . . Analysis of software for verifying properties of programs (testing of software G06F 11/3668)
11/3608 . . . {using formal methods, e.g. model checking, abstract interpretation (theorem proving G06N 5/013)}
11/3612 . . . {by runtime analysis (performance monitoring G06F 11/3466)}
11/3616 . . . {using software metrics}
11/362 . . Debugging of software
11/3624 . . . {by performing operations on the source code, e.g. via a compiler}
11/3628 . . . {of optimised code (optimisation G06F 8/443)}
11/3632 . . . {of specific synchronisation aspects}
11/3636 . . . {by tracing the execution of the program}
11/364 . . . . {tracing values on a bus}
11/3644 . . . {by instrumenting at runtime}
11/3648 . . . {using additional hardware}
11/3652 . . . . {in-circuit-emulation [ICE] arrangements}
11/3656 . . . . {using a specific debug interface}
11/366 . . . {using diagnostics (G06F 11/0703 takes precedence)}
11/3668 . . Testing of software
11/3672 . . . {Test management}
11/3676 . . . . {for coverage analysis}
11/368 . . . . {for test version control, e.g. updating test cases to a new software version}
11/3684 . . . . {for test design, e.g. generating new test cases}
11/3688 . . . . {for test execution, e.g. scheduling of test suites}
11/3692 . . . . {for test results analysis}
11/3696 . . . {Methods or tools to render software testable}
11/3698 . . Environments for analysis, debugging or testing of software

12/00 **Accessing, addressing or allocating within memory systems or architectures** (digital input from, or digital output to record carriers, e.g. to disk storage units, G06F 3/06)
12/02 . Addressing or allocation; Relocation (program address sequencing G06F 9/00; arrangements for selecting an address in a digital store G11C 8/00)
12/0207 . . {with multidimensional access, e.g. row/column, matrix}
12/0215 . . {with look ahead addressing means}
12/0223 . . {User address space allocation, e.g. contiguous or non contiguous base addressing}
12/023 . . . {Free address space management}
12/0238 . . . . {Memory management in non-volatile memory, e.g. resistive RAM or ferroelectric memory}
12/0246 . . . . . {in block erasable memory, e.g. flash memory}
12/0253 . . . . {Garbage collection, i.e. reclamation of unreferenced memory}
12/0261 . . . . . {using reference counting}
12/0269 . . . . . {Incremental or concurrent garbage collection, e.g. in real-time systems (G06F 12/0261 takes precedence)}

Samsung Ex. 1123, p. 23
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

12/0276 . . . . . {Generational garbage collection}
12/0284 . . . {Multiple user address space allocation, e.g. using different base addresses (interprocessor communication G06F 15/163)}
12/0292 . . . {using tables or multilevel address translation means (G06F 12/023 takes precedence; address translation in virtual memory systems G06F 12/10)}
12/04 . . Addressing variable-length words or parts of words
12/06 . . Addressing a physical block of locations, e.g. base addressing, module addressing, memory dedication (G06F 12/08 takes precedence)

NOTE

This group is limited to Module addressing or allocation; base addressing is classified in G06F 12/0223.

12/0607 . . . {Interleaved addressing}
12/0615 . . . {Address space extension}
12/0623 . . . . {for memory modules}
12/063 . . . . {for I/O modules, e.g. memory mapped I/O (I/O protocol G06F 13/42)}
12/0638 . . . {Combination of memories, e.g. ROM and RAM such as to permit replacement or supplementing of words in one module by words in another module (address formation of the next microinstruction G06F 9/26; masking faults in memories by using spares or by reconfiguring G11C 29/70)}
12/0646 . . . {Configuration or reconfiguration}
12/0653 . . . . {with centralised address assignment}
12/0661 . . . . . {and decentralised selection}
12/0669 . . . . {with decentralised address assignment}
12/0676 . . . . . {the address being position dependent}
12/0684 . . . . {with feedback, e.g. presence or absence of unit detected by addressing, overflow detection}
12/0692 . . . . {Multiconfiguration, e.g. local and global addressing}
12/08 . . in hierarchically structured memory systems, e.g. virtual memory systems
12/0802 . . . Addressing of a memory level in which the access to the desired data or data block requires associative addressing means, e.g. caches
12/0804 . . . . with main memory updating (G06F 12/0806 takes precedence)
12/0806 . . . . Multiuser, multiprocessor or multiprocessing cache systems
12/0808 . . . . . with cache invalidating means (G06F 12/0815 takes precedence)
12/0811 . . . . . with multilevel cache hierarchies
12/0813 . . . . . with a network or matrix configuration
12/0815 . . . . . Cache consistency protocols
12/0817 . . . . . using directory methods
12/082 . . . . . {Associative directories (G06F 12/0822 takes precedence)}
12/0822 . . . . . {Copy directories (local copy tags for implementing a bus snooping protocol G06F 12/0831)}
12/0824 . . . . . {Distributed directories, e.g. linked lists of caches}
12/0826 . . . . . {Limited pointers directories; State-only directories without pointers}
12/0828 . . . . . {with concurrent directory accessing, i.e. handling multiple concurrent coherency transactions}
12/0831 . . . . . using a bus scheme, e.g. with bus monitoring or watching means
12/0833 . . . . . {in combination with broadcast means (e.g. for invalidation or updating)}
12/0835 . . . . . {for main memory peripheral accesses (e.g. I/O or DMA)}
12/0837 . . . . . with software control, e.g. non-cacheable data
12/084 . . . . . with a shared cache
12/0842 . . . . . for multiprocessing or multitasking
12/0844 . . . . Multiple simultaneous or quasi-simultaneous cache accessing
12/0846 . . . . . Cache with multiple tag or data arrays being simultaneously accessible
12/0848 . . . . . {Partitioned cache, e.g. separate instruction and operand caches}
12/0851 . . . . . {Cache with interleaved addressing}
12/0853 . . . . . Cache with multiport tag or data arrays
12/0855 . . . . . Overlapped cache accessing, e.g. pipeline (G06F 12/0846 takes precedence)
12/0857 . . . . . {by multiple requestors}
12/0859 . . . . . {with reload from main memory}
12/0862 . . . . with prefetch
12/0864 . . . . using pseudo-associative means, e.g. set-associative or hashing
12/0866 . . . . for peripheral storage systems, e.g. disk cache
12/0868 . . . . . Data transfer between cache memory and other subsystems, e.g. storage devices or host systems
12/0871 . . . . . Allocation or management of cache space
12/0873 . . . . . Mapping of cache memory to specific storage devices or parts thereof
12/0875 . . . . with dedicated cache, e.g. instruction or stack
12/0877 . . . . Cache access modes
12/0879 . . . . . Burst mode
12/0882 . . . . . Page mode
12/0884 . . . . . Parallel mode, e.g. in parallel with main memory or CPU
12/0886 . . . . . Variable-length word access
12/0888 . . . . using selective caching, e.g. bypass
12/0891 . . . . using clearing, invalidating or resetting means
12/0893 . . . . Caches characterised by their organisation or structure
12/0895 . . . . . of parts of caches, e.g. directory or tag array
12/0897 . . . . . with two or more cache hierarchy levels (with multilevel cache hierarchies G06F 12/0811)
12/10 . . . Address translation
12/1009 . . . . using page tables, e.g. page table structures
12/1018 . . . . . involving hashing techniques, e.g. inverted page tables
12/1027 . . . . using associative or pseudo-associative address translation means, e.g. translation look-aside buffer [TLB]
12/1036 . . . . . for multiple virtual address spaces, e.g. segmentation (G06F 12/1045 takes precedence)

Samsung Ex. 1123, p. 24
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

12/1045 . . . . . associated with a data cache
12/1054 . . . . . {the data cache being concurrently physically addressed}
12/1063 . . . . . {the data cache being concurrently virtually addressed}
12/1072 . . . . Decentralised address translation, e.g. in distributed shared memory systems
12/1081 . . . . for peripheral access to main memory, e.g. direct memory access [DMA]
12/109 . . . . for multiple virtual address spaces, e.g. segmentation (G06F 12/1036 takes precedence)
12/12 . . . Replacement control
12/121 . . . . using replacement algorithms
12/122 . . . . . of the least frequently used [LFU] type, e.g. with individual count value
12/123 . . . . . with age lists, e.g. queue, most recently used [MRU] list or least recently used [LRU] list
12/124 . . . . . {being minimized, e.g. non MRU}
12/125 . . . . . {being generated by decoding an array or storage}
12/126 . . . . . with special data handling, e.g. priority of data or instructions, handling errors or pinning
12/127 . . . . . using additional replacement algorithms
12/128 . . . . . adapted to multidimensional cache systems, e.g. set-associative, multicache, multiset or multilevel
12/14 . Protection against unauthorised use of memory {or access to memory}
12/1408 . . {by using cryptography (for digital transmission H04L 9/00)}
12/1416 . . {by checking the object accessibility, e.g. type of access defined by the memory independently of subject rights (G06F 12/1458 takes precedence)}
12/1425 . . . {the protection being physical, e.g. cell, word, block}
12/1433 . . . . {for a module or a part of a module}
12/1441 . . . . {for a range}
12/145 . . . {the protection being virtual, e.g. for virtual blocks or segments before a translation mechanism}
12/1458 . . {by checking the subject access rights}
12/1466 . . . {Key-lock mechanism}
12/1475 . . . . {in a virtual system, e.g. with translation means}
12/1483 . . . {using an access-table, e.g. matrix or list}
12/1491 . . . {in a hierarchical protection system, e.g. privilege levels, memory rings}
12/16 . Protection against loss of memory contents {(contains no material, see G06F 11/00)}

13/00 Interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units (interface circuits for specific input/output devices G06F 3/00 {; multiprogram control therefor G06F 9/46}; multiprocessor systems G06F 15/16)
13/10 . Program control for peripheral devices (G06F 13/14 - G06F 13/42 take precedence)
13/102 . . {where the programme performs an interfacing function, e.g. device driver (G06F 13/105 takes precedence; scheduling within device drivers G06F 9/52; contention policies within device drivers G06F 9/4881)}
13/105 . . {where the programme performs an input/output emulation function}
13/107 . . . {Terminal emulation}
13/12 . . using hardware independent of the central processor, e.g. channel or peripheral processor
13/122 . . . {where hardware performs an I/O function other than control of data transfer}
13/124 . . . {where hardware is a sequential transfer control unit, e.g. microprocessor, peripheral processor or state-machine}
13/126 . . . . {and has means for transferring I/O instructions and statuses between control unit and main processor}
13/128 . . . . {for dedicated transfers to a network (for protocol converters G06F 13/387)}
13/14 . Handling requests for interconnection or transfer
13/16 . . for access to memory bus (G06F 13/28 takes precedence)
13/1605 . . . {based on arbitration (arbitration in handling access to a common bus or bus system G06F 13/36)}
13/161 . . . . {with latency improvement}
13/1615 . . . . . {using a concurrent pipeline structrure}
13/1621 . . . . . {by maintaining request order}
13/1626 . . . . . {by reordering requests}
13/1631 . . . . . {through address comparison}
13/1636 . . . . . {using refresh}
13/1642 . . . . {with request queuing}
13/1647 . . . . {with interleaved bank access}
13/1652 . . . . {in a multiprocessor architecture (interprocessor communication using common memory G06F 15/167)}
13/1657 . . . . . {Access to multiple memories}
13/1663 . . . . . {Access to shared memory}
13/1668 . . . {Details of memory controller}
13/1673 . . . . {using buffers}
13/1678 . . . . {using bus width}
13/1684 . . . . {using multiple buses}
13/1689 . . . . {Synchronisation and timing concerns (synchronisation on a memory bus G06F 13/4234)}
13/1694 . . . . {Configuration of memory controller to different memory types}
13/18 . . . based on priority control (G06F 13/1605 takes precedence)
13/20 . . for access to input/output bus
13/22 . . . using successive scanning, e.g. polling (G06F 13/24 takes precedence)
13/225 . . . . {with priority control}
13/24 . . . using interrupt (G06F 13/32 takes precedence)
13/26 . . . . with priority control
13/28 . . . using burst mode transfer, e.g. direct memory access {DMA}, cycle steal (G06F 13/32 takes precedence)
13/282 . . . . {Cycle stealing DMA (G06F 13/30 takes precedence)}
13/285 . . . . {Halt processor DMA (G06F 13/30 takes precedence)}

Samsung Ex. 1123, p. 25
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

13/287 . . . . {Multiplexed DMA (G06F 13/30 takes precedence)}
13/30 . . . . with priority control
13/32 . . . using combination of interrupt and burst mode transfer
13/34 . . . . with priority control
13/36 . . for access to common bus or bus system
13/362 . . . with centralised access control
13/3625 . . . . {using a time dependent access}
13/364 . . . . using independent requests or grants, e.g. using separated request and grant lines
13/366 . . . . using a centralised polling arbiter
13/368 . . . with decentralised access control
13/37 . . . . using a physical-position-dependent priority, e.g. daisy chain, round robin or token passing
13/372 . . . . using a time-dependent priority, e.g. individually loaded time counters or time slot
13/374 . . . . using a self-select method with individual priority code comparator
13/376 . . . . using a contention resolving method, e.g. collision detection, collision avoidance
13/378 . . . . using a parallel poll method
13/38 . Information transfer, e.g. on bus (G06F 13/14 takes precedence)
13/382 . . {using universal interface adapter}
13/385 . . . {for adaptation of a particular data processing system to different peripheral devices}
13/387 . . . {for adaptation of different data processing systems to different peripheral devices, e.g. protocol converters for incompatible systems, open system}
13/40 . . Bus structure {(for computer networks G06F 15/163; for optical bus networks H04B 10/25)}
13/4004 . . . {Coupling between buses}
13/4009 . . . . {with data restructuring}
13/4013 . . . . . {with data re-ordering, e.g. Endian conversion}
13/4018 . . . . . {with data-width conversion}
13/4022 . . . . {using switching circuits, e.g. switching matrix, connection or expansion network (G06F 13/4009 takes precedence)}
13/4027 . . . . {using bus bridges (G06F 13/4022 takes precedence)}
13/4031 . . . . . {with arbitration}
13/4036 . . . . . {and deadlock prevention}
13/404 . . . . . {with address mapping}
13/4045 . . . . . {where the bus bridge performs an extender function}
13/405 . . . . . {where the bridge performs a synchronising function}
13/4054 . . . . . {where the function is bus cycle extension, e.g. to meet the timing requirements of the target bus}
13/4059 . . . . . {where the synchronisation uses buffers, e.g. for speed matching between buses}
13/4063 . . . {Device-to-bus coupling}
13/4068 . . . . {Electrical coupling}
13/4072 . . . . . {Drivers or receivers (G06F 13/4086 takes precedence; for multistate logic circuits H03K 19/0002)}
13/4077 . . . . . {Precharging or discharging}
13/4081 . . . . . {Live connection to bus, e.g. hot-plugging (current or voltage limitation during live insertion H02H 9/004)}
13/4086 . . . . . {Bus impedance matching, e.g. termination}
13/409 . . . . {Mechanical coupling (back panels H05K 7/1438)}
13/4095 . . . . . {in incremental bus architectures, e.g. bus stacks}
13/42 . . Bus transfer protocol, e.g. handshake; Synchronisation
13/4204 . . . {on a parallel bus}
13/4208 . . . . {being a system bus, e.g. VME bus, Futurebus, Multibus}
13/4213 . . . . . {with asynchronous protocol}
13/4217 . . . . . {with synchronous protocol}
13/4221 . . . . {being an input/output bus, e.g. ISA bus, EISA bus, PCI bus, SCSI bus}
13/4226 . . . . . {with asynchronous protocol}
13/423 . . . . . {with synchronous protocol}
13/4234 . . . . {being a memory bus}
13/4239 . . . . . {with asynchronous protocol}
13/4243 . . . . . {with synchronous protocol}
13/4247 . . . {on a daisy chain bus}
13/4252 . . . . {using a handshaking protocol}
13/4256 . . . . {using a clocked protocol}
13/426 . . . . {using an embedded synchronisation, e.g. Firewire bus, Fibre Channel bus, SSA bus}
13/4265 . . . {on a point to point bus (G06F 13/4247, G06F 13/4282 take precedence)}
13/4269 . . . . {using a handshaking protocol, e.g. Centronics connection}
13/4273 . . . . {using a clocked protocol}
13/4278 . . . . {using an embedded synchronisation}
13/4282 . . . {on a serial bus, e.g. I2C bus, SPI bus (on daisy chain buses G06F 13/4247)}
13/4286 . . . . {using a handshaking protocol, e.g. RS232C link}
13/4291 . . . . {using a clocked protocol}
13/4295 . . . . {using an embedded synchronisation}

15/00 Digital computers in general (details G06F 1/00 – G06F 13/00)**; Data processing equipment in general**
15/02 . manually operated with input through keyboard and computation using a built-in program, e.g. pocket calculators
15/0208 . . {for combination with other devices having a different main function, e.g. watches, pens}
15/0216 . . {Constructional details or arrangements}
15/0225 . . {User interface arrangements, e.g. keyboard, display; Interfaces to other computer systems}
15/0233 . . . {with printing provisions}
15/0241 . . {of the IC-card-like type}
15/025 . . {adapted to a specific application}
15/0258 . . . {for unit conversion}
15/0266 . . . {for time management, e.g. calendars, diaries}
15/0275 . . . {for measuring}
15/0283 . . . {for data storage and retrieval}
15/0291 . . . {for reading, e.g. e-books (constructional details of portable computers G06F 1/1613)}
15/04 . programmed simultaneously with the introduction of data to be processed, e.g. on the same record carrier

Samsung Ex. 1123, p. 26
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

15/08 . using a plugboard for programming
15/10 . . Tabulators
15/12 . . . having provision for both printed and punched output
15/14 . . Calculating-punches
15/16 . Combinations of two or more digital computers each having at least an arithmetic unit, a program unit and a register, e.g. for a simultaneous processing of several programs {(coordinating program control therefor G06F 9/52; in regulating and control system G05B)}
15/161 . . {Computing infrastructure, e.g. computer clusters, blade chassis or hardware partitioning (casings, cabinets, racks or drawers for data centers H05K 5/00)}
15/163 . . Interprocessor communication
15/167 . . . using a common memory, e.g. mailbox
15/17 . . . using an input/output type connection, e.g. channel, I/O port
15/173 . . . using an interconnection network, e.g. matrix, shuffle, pyramid, star, snowflake
15/17306 . . . . {Intercommunication techniques}
15/17312 . . . . . {Routing techniques specific to parallel machines, e.g. wormhole, store and forward, shortest path problem congestion (routing on a LAN H04L 45/00)}
15/17318 . . . . . {Parallel communications techniques, e.g. gather, scatter, reduce, roadcast, multicast, all to all}
15/17325 . . . . . {Synchronisation; Hardware support therefor (intertask synchronisation G06F 9/52)}
15/17331 . . . . . {Distributed shared memory [DSM], e.g. remote direct memory access [RDMA]}
15/17337 . . . . {Direct connection machines, e.g. completely connected computers, point to point communication networks (coupling between buses G06F 13/4004)}
15/17343 . . . . . {wherein the interconnection is dynamically configurable, e.g. having loosely coupled nearest neighbor architecture (reconfigurable processors arrays G06F 15/7867)}
15/1735 . . . . {Network adapters, e.g. SCI, Myrinet (protocol engines H04L 69/12)}
15/17356 . . . . {Indirect interconnection networks}
15/17362 . . . . . {hierarchical topologies}
15/17368 . . . . . {non hierarchical topologies}
15/17375 . . . . . {One dimensional, e.g. linear array, ring}
15/17381 . . . . . {Two dimensional, e.g. mesh, torus}
15/17387 . . . . . {Three dimensional, e.g. hypercubes}
15/17393 . . . . . {having multistage networks, e.g. broadcasting scattering, gathering, hot spot contention, combining/ decombining}
15/177 . . Initialisation or configuration control {(processor initialisation G06F 9/4405)}
15/76 . Architectures of general purpose stored program computers (with program plugboard G06F 15/08; multicomputers G06F 15/16)
2015/761 . . {Indexing scheme relating to architectures of general purpose stored programme computers}
2015/763 . . . {ASIC}
2015/765 . . . {Cache}
2015/766 . . . {Flash EPROM}
2015/768 . . . {Gate array}
15/78 . . comprising a single central processing unit
15/7803 . . . {System on board, i.e. computer system on one or more PCB, e.g. motherboards, daughterboards or blades}
15/7807 . . . {System on chip, i.e. computer system on a single chip; System in package, i.e. computer system on one or more chips in a single package}
15/781 . . . . {On-chip cache; Off-chip memory}
15/7814 . . . . {Specially adapted for real time processing, e.g. comprising hardware timers}
15/7817 . . . . {Specially adapted for signal processing, e.g. Harvard architectures}
15/7821 . . . . {Tightly coupled to memory, e.g. computational memory, smart memory, processor in memory}
15/7825 . . . . {Globally asynchronous, locally synchronous, e.g. network on chip}
15/7828 . . . {without memory}
15/7832 . . . . {on one IC chip (single chip microprocessors)}
15/7835 . . . . {on more than one IC chip}
15/7839 . . . {with memory}
15/7842 . . . . {on one IC chip (single chip microcontrollers)}
15/7846 . . . . . {On-chip cache and off-chip main memory}
15/785 . . . . . {with decentralized control, e.g. smart memories}
15/7853 . . . . . {including a ROM}
15/7857 . . . . . {using interleaved memory (addressing G06F 12/0607)}
15/786 . . . . . {using a single memory module}
15/7864 . . . . {on more than one IC chip}
15/7867 . . . {with reconfigurable architecture}
15/7871 . . . . {Reconfiguration support, e.g. configuration loading, configuration switching, or hardware OS}
15/7875 . . . . . {for multiple contexts}
15/7878 . . . . . {for pipeline reconfiguration}
15/7882 . . . . . {for self reconfiguration}
15/7885 . . . . {Runtime interface, e.g. data exchange, runtime control}
15/7889 . . . . . {Reconfigurable logic implemented as a co-processor (instruction execution using a coprocessor G06F 9/3877)}
15/7892 . . . . . {Reconfigurable logic embedded in CPU, e.g. reconfigurable unit}
15/7896 . . . {Modular architectures, e.g. assembled from a number of identical packages}
15/80 . . comprising an array of processing units with common control, e.g. single instruction multiple data processors (G06F 15/82 takes precedence {; for correlation function computation G06F 17/15})
15/8007 . . . {single instruction multiple data [SIMD] multiprocessors}
15/8015 . . . . {One dimensional arrays, e.g. rings, linear arrays, buses}
15/8023 . . . . {Two dimensional arrays, e.g. mesh, torus}
15/803 . . . . {Three-dimensional arrays or hypercubes}

Samsung Ex. 1123, p. 27
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

15/8038 . . . {Associative processors}
15/8046 . . . {Systolic arrays}
15/8053 . . . {Vector processors}
15/8061 . . . . {Details on data memory access}
15/8069 . . . . . {using a cache}
15/8076 . . . . {Details on data register access}
15/8084 . . . . . {Special arrangements thereof, e.g. mask or switch}
15/8092 . . . . {Array of vector units}
15/82 . . data or demand driven
15/825 . . . {Dataflow computers}

16/00 Information retrieval; Database structures therefor; File system structures therefor

16/10 . File systems; File servers
16/11 . . File system administration, e.g. details of archiving or snapshots (file system backup G06F 11/14)
16/113 . . . {Details of archiving (lifecycle management in storage systems G06F 3/0649; backup systems G06F 11/1446)}
16/116 . . . {Details of conversion of file system types or formats}
16/119 . . . {Details of migration of file systems (migration mechanisms in storage systems G06F 3/0647)}
16/122 . . . {using management policies (backup systems G06F 11/1446; file migration policies for HSM systems G06F 16/185)}
16/125 . . . . {characterised by the use of retention policies (retention policies for HSM systems G06F 16/185)}
16/128 . . . {Details of file system snapshots on the file-level, e.g. snapshot creation, administration, deletion (use of snapshots for error detection or correction G06F 11/14, G06F 11/16)}
16/13 . . File access structures, e.g. distributed indices (arrangements of input from, or output to, record carriers G06F 3/06)
16/134 . . . {Distributed indices}
16/137 . . . {Hash-based (content-based indexing of textual data G06F 16/31)}
16/14 . . Details of searching files based on file metadata
16/144 . . . {Query formulation}
16/148 . . . {File search processing}
16/152 . . . . {using file content signatures, e.g. hash values}
16/156 . . . {Query results presentation}
16/16 . . File or folder operations, e.g. details of user interfaces specifically adapted to file systems
16/162 . . . {Delete operations (erasing in storage systems G06F 3/0652)}
16/164 . . . {File meta data generation}
16/166 . . . . {File name conversion}
16/168 . . . {Details of user interfaces specifically adapted to file systems, e.g. browsing and visualisation, 2d or 3d GUIs (query results presentation G06F 16/156)}
16/17 . . Details of further file system functions
16/172 . . . Caching, prefetching or hoarding of files
16/1724 . . . {Details of de-fragmentation performed by the file system (saving storage space on storage systems G06F 3/0608; management of blocks in storage devices G06F 3/064)}
16/1727 . . . {Details of free space management performed by the file system (saving storage space on storage systems G06F 3/0608; management of blocks in storage devices G06F 3/064)}
16/173 . . . {Customisation support for file systems, e.g. localisation, multi-language support, personalisation}
16/1734 . . . {Details of monitoring file system events, e.g. by the use of hooks, filter drivers, logs}
16/1737 . . . {for reducing power consumption or coping with limited storage space, e.g. in mobile devices (saving storage space on storage devices G06F 3/0608; power saving in storage systems G06F 3/0625)}
16/174 . . . Redundancy elimination performed by the file system (management of the data involved in backup or backup restore using de-duplication of the data G06F 11/14)
16/1744 . . . . {using compression, e.g. sparse files}
16/1748 . . . . {De-duplication implemented within the file system, e.g. based on file segments (de-duplication techniques in storage systems for the management of data blocks G06F 3/0641)}
16/1752 . . . . . {based on file chunks}
16/1756 . . . . . {based on delta files}
16/176 . . . Support for shared access to files; File sharing support
16/1767 . . . . {Concurrency control, e.g. optimistic or pessimistic approaches}
16/1774 . . . . . {Locking methods, e.g. locking methods for file systems allowing shared and concurrent access to files}
16/178 . . . Techniques for file synchronisation in file systems
16/1787 . . . . {Details of non-transparently synchronising file systems}
16/1794 . . . . {Details of file format conversion}

WARNING

Group G06F 16/1794 is impacted by reclassification into group G06F 16/258.

Groups G06F 16/1794 and G06F 16/258 should be considered in order to perform a complete search.

16/18 . . File system types
16/1805 . . . {Append-only file systems, e.g. using logs or journals to store data}
16/181 . . . . {providing write once read many [WORM] semantics}
16/1815 . . . . {Journaling file systems}
16/182 . . . Distributed file systems
16/1824 . . . . {implemented using Network-attached Storage [NAS] architecture (distributed or networked storage systems G06F 3/067; protocols for distributed storage of data in a network H04L 67/1097)}
16/1827 . . . . . {Management specifically adapted to NAS (management of storage area networks [SAN] G06F 3/067)}
16/183 . . . . . {Provision of network file services by network file servers, e.g. by using NFS, CIFS (network file access protocols H04L 67/1097)}

Samsung Ex. 1123, p. 28
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/1834 . . . . {implemented based on peer-to-peer networks, e.g. gnutella (p2p communication protocols H04L 67/104)}
16/1837 . . . . . {Management specially adapted to peer-to-peer storage networks (topology management mechanisms of peer-to-peer networks H04L 67/1042)}
16/184 . . . . {implemented as replicated file system}
16/1844 . . . . . {Management specifically adapted to replicated file systems}
16/1847 . . . {specifically adapted to static storage, e.g. adapted to flash memory or SSD}
16/185 . . . Hierarchical storage management [HSM] systems, e.g. file migration or policies thereof (details of archiving G06F 16/11)
16/1858 . . . {Parallel file systems, i.e. file systems supporting multiple processors}
16/1865 . . . {Transactional file systems}
16/1873 . . . {Versioning file systems, temporal file systems, e.g. file system supporting different historic versions of files}
16/188 . . . Virtual file systems
16/192 . . . . {Implementing virtual folder structures}
16/196 . . . . {Specific adaptations of the file system to access devices and non-file objects via standard file system access operations, e.g. pseudo file systems (dedicated interfaces to storage systems G06F 3/0601)}
16/20 . of structured data, e.g. relational data
16/21 . . Design, administration or maintenance of databases
16/211 . . . {Schema design and management}
16/212 . . . . {with details for data modelling support}
16/213 . . . . {with details for schema evolution support}
16/214 . . . {Database migration support}
16/215 . . . Improving data quality; Data cleansing, e.g. de-duplication, removing invalid entries or correcting typographical errors
16/217 . . . {Database tuning (G06F 16/2282 takes precedence; database performance monitoring G06F 11/3409)}
16/219 . . . {Managing data history or versioning (querying versioned data G06F 16/2474; querying temporal data G06F 16/2477)}
16/22 . . Indexing; Data structures therefor; Storage structures
16/221 . . . {Column-oriented storage; Management thereof}
16/2219 . . . {Large Object storage; Management thereof}
16/2228 . . . {Indexing structures}
16/2237 . . . . {Vectors, bitmaps or matrices}
16/2246 . . . . {Trees, e.g. B+trees}
16/2255 . . . . {Hash tables}
16/2264 . . . . {Multidimensional index structures}
16/2272 . . . . {Management thereof}
16/2282 . . . {Tablespace storage structures; Management thereof}
16/2291 . . . {User-Defined Types; Storage management thereof}

16/23 . . Updating

WARNING

Group G06F 16/23 is impacted by reclassification into group G06F 16/25.

Groups G06F 16/23 and G06F 16/25 should be considered in order to perform a complete search.

16/2308 . . . {Concurrency control (transaction processing G06F 9/466)}

WARNING

Group G06F 16/2308 is impacted by reclassification into groups G06F 16/2315, G06F 16/2322, G06F 16/2329, G06F 16/2336, and G06F 16/2343.

All groups listed in this Warning should be considered in order to perform a complete search.

16/2315 . . . . {Optimistic concurrency control}

WARNING

Groups G06F 16/2315 - G06F 16/2329 are incomplete pending reclassification of documents from group G06F 16/2308.

Groups G06F 16/2308 and G06F 16/2315 - G06F 16/2329 should be considered in order to perform a complete search.

16/2322 . . . . . {using timestamps}
16/2329 . . . . . {using versioning}
16/2336 . . . . {Pessimistic concurrency control approaches, e.g. locking or multiple versions without time stamps}

WARNING

Groups G06F 16/2336 and G06F 16/2343 are incomplete pending reclassification of documents from group G06F 16/2308.

Groups G06F 16/2308, G06F 16/2336, and G06F 16/2343 should be considered in order to perform a complete search.

16/2343 . . . . . {Locking methods, e.g. distributed locking or locking implementation details}
16/235 . . . {Update request formulation}
16/2358 . . . {Change logging, detection, and notification (replication G06F 16/27)}
16/2365 . . . {Ensuring data consistency and integrity}
16/2372 . . . {Updates performed during offline database operations}
16/2379 . . . {Updates performed during online database operations; commit processing}
16/2386 . . . . {Bulk updating operations (data conversion details G06F 16/258)}
16/2393 . . . {Updating materialised views}
16/24 . . Querying
16/242 . . . Query formulation
16/2423 . . . . {Interactive query statement specification based on a database schema}
16/2425 . . . . {Iterative querying; Query formulation based on the results of a preceding query}

Samsung Ex. 1123, p. 29
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/2428 . . . . {Query predicate definition using graphical user interfaces, including menus and forms (G06F 16/2423 takes precedence)}
16/243 . . . . {Natural language query formulation}
16/2433 . . . . {Query languages}
16/2435 . . . . . {Active constructs}
16/2438 . . . . . {Embedded query languages}
16/244 . . . . . {Grouping and aggregation}
16/2443 . . . . . {Stored procedures}
16/2445 . . . . . {Data retrieval commands; View definitions}
16/2448 . . . . . {for particular applications; for extensibility, e.g. user defined types}
16/245 . . . Query processing
16/2452 . . . . Query translation
16/24522 . . . . . {Translation of natural language queries to structured queries}
16/24524 . . . . . {Access plan code generation and invalidation; Reuse of access plans}
16/24526 . . . . . {Internal representations for queries}
16/24528 . . . . . {Standardisation; Simplification}
16/2453 . . . . Query optimisation
16/24532 . . . . . {of parallel queries}
16/24534 . . . . . {Query rewriting; Transformation}
16/24535 . . . . . {of sub-queries or views}
16/24537 . . . . . {of operators}
16/24539 . . . . . {using cached or materialised query results}
16/2454 . . . . . {Optimisation of common expressions}
16/24542 . . . . . {Plan optimisation}
16/24544 . . . . . {Join order optimisation}
16/24545 . . . . . {Selectivity estimation or determination}
16/24547 . . . . . {Optimisations to support specific applications; Extensibility of optimisers}
16/24549 . . . . . {Run-time optimisation}
16/2455 . . . . Query execution
16/24552 . . . . . {Database cache management}
16/24553 . . . . . {of query operations}
16/24554 . . . . . {Unary operations; Data partitioning operations}
16/24556 . . . . . {Aggregation; Duplicate elimination}
16/24557 . . . . . {Efficient disk access during query execution}
16/24558 . . . . . {Binary matching operations}
16/2456 . . . . . {Join operations}
16/24561 . . . . . {Intermediate data storage techniques for performance improvement}
16/24562 . . . . . {Pointer or reference processing operations}
16/24564 . . . . . {Applying rules; Deductive queries}
16/24565 . . . . . {Triggers; Constraints}
16/24566 . . . . . {Recursive queries}
16/24568 . . . . . {Data stream processing; Continuous queries}
16/24569 . . . . {Query processing with adaptation to specific hardware, e.g. adapted for using GPUs or SSDs}
16/2457 . . . . with adaptation to user needs
16/24573 . . . . . {using data annotations, e.g. user-defined metadata}
16/24575 . . . . . {using context}
16/24578 . . . . . {using ranking}
16/2458 . . . . Special types of queries, e.g. statistical queries, fuzzy queries or distributed queries
16/2462 . . . . . {Approximate or statistical queries}
16/2465 . . . . . {Query processing support for facilitating data mining operations in structured databases}
16/2468 . . . . . {Fuzzy queries}
16/2471 . . . . . {Distributed queries}
16/2474 . . . . . {Sequence data queries, e.g. querying versioned data}
16/2477 . . . . . {Temporal data queries}
16/248 . . . Presentation of query results
16/25 . . Integrating or interfacing systems involving database management systems

WARNING

Group G06F 16/25 is incomplete pending reclassification of documents from group G06F 16/23.

Groups G06F 16/23 and G06F 16/25 should be considered in order to perform a complete search.

16/252 . . . {between a Database Management System and a front-end application}
16/254 . . . {Extract, transform and load [ETL] procedures, e.g. ETL data flows in data warehouses}
16/256 . . . {in federated or virtual databases}
16/258 . . . {Data format conversion from or to a database}

WARNING

Groups G06F 16/258 is incomplete pending reclassification of documents from group G06F 16/1794.

Groups G06F 16/1794 and G06F 16/258 should be considered in order to perform a complete search.

16/26 . . Visual data mining; Browsing structured data
16/27 . . Replication, distribution or synchronisation of data between databases or within a distributed database system; Distributed database system architectures therefor

WARNING

Group G06F 16/27 is impacted by reclassification into groups G06F 16/273, G06F 16/275, and G06F 16/278.

All groups listed in this Warning should be considered in order to perform a complete search.

16/273 . . . {Asynchronous replication or reconciliation}

WARNING

Groups G06F 16/273 is incomplete pending reclassification of documents from group G06F 16/27.

Groups G06F 16/27 and G06F 16/273 should be considered in order to perform a complete search.

Samsung Ex. 1123, p. 30
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/275 . . . {Synchronous replication}

WARNING

Groups G06F 16/275 is incomplete pending reclassification of documents from group G06F 16/27.

Groups G06F 16/27 and G06F 16/275 should be considered in order to perform a complete search.

16/278 . . . {Data partitioning, e.g. horizontal or vertical partitioning}

WARNING

Groups G06F 16/278 is incomplete pending reclassification of documents from group G06F 16/27.

Groups G06F 16/27 and G06F 16/278 should be considered in order to perform a complete search.

16/28 . . Databases characterised by their database models, e.g. relational or object models

16/282 . . . {Hierarchical databases, e.g. IMS, LDAP data stores or Lotus Notes}

16/283 . . . {Multi-dimensional databases or data warehouses, e.g. MOLAP or ROLAP}

16/284 . . . {Relational databases}

16/285 . . . . {Clustering or classification}

16/287 . . . . . {Visualization; Browsing}

16/288 . . . . {Entity relationship models}

16/289 . . . {Object oriented databases}

16/29 . . Geographical information databases

16/30 . of unstructured textual data (document management systems G06F 16/93)

NOTE

In groups G06F 16/30, G06F 16/31, G06F 16/313, G06F 16/316, G06F 16/319, G06F 16/322, G06F 16/325, G06F 16/328, G06F 16/33, G06F 16/332, G06F 16/3322, G06F 16/3323, G06F 16/3325, G06F 16/3326, G06F 16/3328, G06F 16/3329, G06F 16/33295, G06F 16/3331, G06F 16/3332, G06F 16/3334, G06F 16/3335, G06F 16/3337, G06F 16/3338, G06F 16/334, G06F 16/3341, G06F 16/3343, G06F 16/3344, G06F 16/3346, G06F 16/3347, G06F 16/3349, G06F 16/335, G06F 16/337, G06F 16/338, G06F 16/34, G06F 16/345, G06F 16/35, G06F 16/353, G06F 16/355, G06F 16/358, G06F 16/36, G06F 16/367 and G06F 16/374, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/38, G06F 16/381, G06F 16/382, G06F 16/383 and G06F 16/387.

16/31 . . Indexing; Data structures therefor; Storage structures

16/313 . . . {Selection or weighting of terms for indexing}

16/316 . . . {Indexing structures}

16/319 . . . . {Inverted lists}

16/322 . . . . {Trees}

16/325 . . . . {Hash tables}

16/328 . . . . {Management therefor}

16/33 . . Querying

16/332 . . . Query formulation

16/3322 . . . . {using system suggestions (G06F 16/3325 takes precedence)}

16/3323 . . . . . {using document space presentation or visualization, e.g. category, hierarchy or range presentation and selection}

16/3325 . . . . {Reformulation based on results of preceding query}

16/3326 . . . . . {using relevance feedback from the user, e.g. relevance feedback on documents, documents sets, document terms or passages}

16/3328 . . . . . {using graphical result space presentation or visualisation}

16/3329 . . . . Natural language query formulation

WARNING

Group G06F 16/3329 is impacted by reclassification into group G06F 16/33295.

Groups G06F 16/3329 and G06F 16/33295 should be considered in order to perform a complete search.

16/33295 . . . . . {in dialogue systems}

WARNING

Group G06F 16/33295 is incomplete pending reclassification of documents from group G06F 16/3329.

Groups G06F 16/3329 and G06F 16/33295 should be considered in order to perform a complete search.

16/3331 . . . Query processing

16/3332 . . . . Query translation

16/3334 . . . . . {Selection or weighting of terms from queries, including natural language queries}

16/3335 . . . . . {Syntactic pre-processing, e.g. stopword elimination, stemming}

16/3337 . . . . . {Translation of the query language, e.g. Chinese to English}

16/3338 . . . . . {Query expansion}

16/334 . . . . Query execution (filtering based on additional data G06F 16/335)

16/3341 . . . . . {using boolean model}

16/3343 . . . . . {using phonetics}

16/3344 . . . . . {using natural language analysis}

16/3346 . . . . . {using probabilistic model}

16/3347 . . . . . {using vector based model}

16/3349 . . . . Reuse of stored results of previous queries

16/335 . . . Filtering based on additional data, e.g. user or group profiles (filtering in web context G06F 16/9535, G06F 16/9536)

16/337 . . . . {Profile generation, learning or modification}

16/338 . . . Presentation of query results

Samsung Ex. 1123, p. 31
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/34 . . Browsing; Visualisation therefor (browsing or visualisation for clustering or classification G06F 16/358)

WARNING

Group G06F 16/34 is impacted by reclassification into group G06F 16/358.

Groups G06F 16/34 and G06F 16/358 should be considered in order to perform a complete search.

16/345 . . . {Summarisation for human users}

16/35 . . Clustering; Classification

16/353 . . . into predefined classes

16/355 . . . Creation or modification of classes or clusters

16/358 . . . Browsing; Visualisation therefor

WARNING

Group G06F 16/358 is incomplete pending reclassification of documents from group G06F 16/34.

Groups G06F 16/34 and G06F 16/358 should be considered in order to perform a complete search.

16/36 . . Creation of semantic tools, e.g. ontology or thesauri

16/367 . . . {Ontology}

16/374 . . . {Thesaurus}

16/38 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/38 is impacted by reclassification into groups G06F 16/383 and G06F 16/387.

All groups listed in this Warning should be considered in order to perform a complete search.

16/381 . . . {using identifiers, e.g. barcodes, RFIDs (for URLs G06F 16/9554)}

16/382 . . . {using citations (hypermedia G06F 16/94)}

16/383 . . . using metadata automatically derived from the content

WARNING

Group G06F 16/383 is incomplete pending reclassification of documents from group G06F 16/38.

Groups G06F 16/38 and G06F 16/383 should be considered in order to perform a complete search.

16/387 . . . using geographical or spatial information, e.g. location

WARNING

Group G06F 16/387 is incomplete pending reclassification of documents from group G06F 16/38.

Groups G06F 16/38 and G06F 16/387 should be considered in order to perform a complete search.

16/40 . of multimedia data, e.g. slideshows comprising image and additional audio data (retrieval of still image data G06F 16/50; retrieval of audio data G06F 16/60; retrieval of video data G06F 16/70)

NOTE

In groups G06F 16/40, G06F 16/41, G06F 16/43, G06F 16/432, G06F 16/433, G06F 16/434, G06F 16/435, G06F 16/436, G06F 16/437, G06F 16/438, G06F 16/4387, G06F 16/4393, G06F 16/44, G06F 16/444, G06F 16/447 and G06F 16/45, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/48, G06F 16/483, G06F 16/487 and G06F 16/489.

WARNING

Group G06F 16/40 is impacted by reclassification into groups G06F 16/45, G06F 16/48, G06F 16/483, G06F 16/487, and G06F 16/489.

All groups listed in this Warning should be considered in order to perform a complete search.

16/41 . . Indexing; Data structures therefor; Storage structures

16/43 . . Querying

WARNING

Group G06F 16/43 is impacted by reclassification into groups G06F 16/432, G06F 16/48, G06F 16/483, G06F 16/487, and G06F 16/489.

All groups listed in this Warning should be considered in order to perform a complete search.

16/432 . . . Query formulation

WARNING

Group G06F 16/432 is incomplete pending reclassification of documents from group G06F 16/43.

Groups G06F 16/43 and G06F 16/432 should be considered in order to perform a complete search.

16/433 . . . . {using audio data}

16/434 . . . . {using image data, e.g. images, photos, pictures taken by a user}

16/435 . . . Filtering based on additional data, e.g. user or group profiles

16/436 . . . . {using biological or physiological data of a human being, e.g. blood pressure, facial expression, gestures}

16/437 . . . . {Administration of user profiles, e.g. generation, initialisation, adaptation, distribution}

16/438 . . . Presentation of query results

16/4387 . . . . {by the use of playlists}

16/4393 . . . . . {Multimedia presentations, e.g. slide shows, multimedia albums}

16/44 . . Browsing; Visualisation therefor

Samsung Ex. 1123, p. 32
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/444 . . . {Spatial browsing, e.g. 2D maps, 3D or virtual spaces}

16/447 . . . {Temporal browsing, e.g. timeline}

16/45 . . Clustering; Classification

WARNING

Group G06F 16/45 is incomplete pending reclassification of documents from group G06F 16/40.

Groups G06F 16/40 and G06F 16/45 should be considered in order to perform a complete search.

16/48 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/48 is incomplete pending reclassification of documents from groups G06F 16/40 and G06F 16/43.

Groups G06F 16/40, G06F 16/43, and G06F 16/48 should be considered in order to perform a complete search.

16/483 . . . using metadata automatically derived from the content

WARNING

Group G06F 16/483 is incomplete pending reclassification of documents from groups G06F 16/40 and G06F 16/43.

Groups G06F 16/40, G06F 16/43, and G06F 16/483 should be considered in order to perform a complete search.

16/487 . . . using geographical or spatial information, e.g. location

WARNING

Group G06F 16/487 is incomplete pending reclassification of documents from groups G06F 16/40 and G06F 16/43.

Groups G06F 16/40, G06F 16/43, and G06F 16/487 should be considered in order to perform a complete search.

16/489 . . . {using time information}

WARNING

Group G06F 16/489 is incomplete pending reclassification of documents from groups G06F 16/40 and G06F 16/43.

Groups G06F 16/40, G06F 16/43, and G06F 16/489 should be considered in order to perform a complete search.

16/50 . of still image data

NOTE

In groups G06F 16/50, G06F 16/51, G06F 16/53, G06F 16/532, G06F 16/535, G06F 16/538, G06F 16/54, G06F 16/55 and G06F 16/56, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/58, G06F 16/583, G06F 16/5838, G06F 16/5846, G06F 16/5854, G06F 16/5862 and G06F 16/587.

WARNING

Group G06F 16/50 is impacted by reclassification into groups G06F 16/53, G06F 16/532, G06F 16/535, G06F 16/538, and G06F 16/55.

All groups listed in this Warning should be considered in order to perform a complete search.

16/51 . . Indexing; Data structures therefor; Storage structures

16/53 . . Querying

WARNING

Group G06F 16/53 is incomplete pending reclassification of documents from group G06F 16/50.

Groups G06F 16/50 and G06F 16/53 should be considered in order to perform a complete search.

16/532 . . . Query formulation, e.g. graphical querying

WARNING

Group G06F 16/532 is incomplete pending reclassification of documents from group G06F 16/50.

Groups G06F 16/50 and G06F 16/532 should be considered in order to perform a complete search.

16/535 . . . Filtering based on additional data, e.g. user or group profiles

WARNING

Group G06F 16/535 is incomplete pending reclassification of documents from group G06F 16/50.

Groups G06F 16/50 and G06F 16/535 should be considered in order to perform a complete search.

16/538 . . . Presentation of query results

WARNING

Group G06F 16/538 is incomplete pending reclassification of documents from group G06F 16/50.

Groups G06F 16/50 and G06F 16/538 should be considered in order to perform a complete search.

16/54 . . Browsing; Visualisation therefor

16/55 . . Clustering; Classification

WARNING

Group G06F 16/55 is incomplete pending reclassification of documents from group G06F 16/50.

Groups G06F 16/50 and G06F 16/55 should be considered in order to perform a complete search.

Samsung Ex. 1123, p. 33
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/56 . . having vectorial format

16/58 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/58 is impacted by reclassification into group G06F 16/587.

Groups G06F 16/58 and G06F 16/587 should be considered in order to perform a complete search.

16/583 . . . using metadata automatically derived from the content

16/5838 . . . . {using colour}

WARNING

Group G06F 16/5838 is impacted by reclassification into groups G06F 16/5846, G06F 16/5854, and G06F 16/5862.

All groups listed in this Warning should be considered in order to perform a complete search.

16/5846 . . . . {using extracted text}

WARNING

Group G06F 16/5846 is incomplete pending reclassification of documents from group G06F 16/5838.

Groups G06F 16/5838 and G06F 16/5846 should be considered in order to perform a complete search.

16/5854 . . . . {using shape and object relationship}

WARNING

Group G06F 16/5854 is incomplete pending reclassification of documents from group G06F 16/5838.

Groups G06F 16/5838 and G06F 16/5854 should be considered in order to perform a complete search.

16/5862 . . . . {using texture}

WARNING

Group G06F 16/5862 is incomplete pending reclassification of documents from group G06F 16/5838.

Groups G06F 16/5838 and G06F 16/5862 should be considered in order to perform a complete search.

16/5866 . . . {using information manually generated, e.g. tags, keywords, comments, manually generated location and time information}

WARNING

Group G06F 16/5866 is impacted by reclassification into group G06F 16/587.

Groups G06F 16/5866 and G06F 16/587 should be considered in order to perform a complete search.

16/587 . . . using geographical or spatial information, e.g. location

WARNING

Group G06F 16/587 is incomplete pending reclassification of documents from groups G06F 16/58 and G06F 16/5866.

Groups G06F 16/58, G06F 16/5866, and G06F 16/587 should be considered in order to perform a complete search.

16/60 . of audio data

NOTE

In groups G06F 16/60, G06F 16/61, G06F 16/63, G06F 16/632, G06F 16/634, G06F 16/635, G06F 16/636, G06F 16/637, G06F 16/638, G06F 16/639, G06F 16/64, and G06F 16/65, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/68, G06F 16/683, G06F 16/685, G06F 16/686 and G06F 16/687.

WARNING

Group G06F 16/60 is impacted by reclassification into groups G06F 16/63 and G06F 16/65.

Groups G06F 16/60, G06F 16/63, and G06F 16/65 should be considered in order to perform a complete search.

16/61 . . Indexing; Data structures therefor; Storage structures

16/63 . . Querying

WARNING

Group G06F 16/63 is incomplete pending reclassification of documents from group G06F 16/60.

Groups G06F 16/60 and G06F 16/63 should be considered in order to perform a complete search.

16/632 . . . Query formulation

16/634 . . . . {Query by example, e.g. query by humming}

16/635 . . . Filtering based on additional data, e.g. user or group profiles

16/636 . . . . {by using biological or physiological data}

16/637 . . . . {Administration of user profiles, e.g. generation, initialization, adaptation or distribution}

16/638 . . . Presentation of query results

16/639 . . . . {using playlists}

16/64 . . Browsing; Visualisation therefor (generation of a list or set of audio data G06F 16/638)

Samsung Ex. 1123, p. 34
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/65 . . Clustering; Classification

WARNING

Group G06F 16/65 is incomplete pending reclassification of documents from group G06F 16/60.

Groups G06F 16/60 and G06F 16/65 should be considered in order to perform a complete search.

16/68 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/68 is impacted by reclassification into group G06F 16/687.

Groups G06F 16/68 and G06F 16/687 should be considered in order to perform a complete search.

16/683 . . . using metadata automatically derived from the content

16/685 . . . . {using automatically derived transcript of audio data, e.g. lyrics (speech recognition G10L 15/00)}

16/686 . . . {using information manually generated, e.g. tags, keywords, comments, title or artist information, time, location or usage information, user ratings}

WARNING

Group G06F 16/686 is impacted by reclassification into group G06F 16/687.

Groups G06F 16/686 and G06F 16/687 should be considered in order to perform a complete search.

16/687 . . . using geographical or spatial information, e.g. location

WARNING

Group G06F 16/687 is incomplete pending reclassification of documents from groups G06F 16/68 and G06F 16/686.

Groups G06F 16/68, G06F 16/686, and G06F 16/687 should be considered in order to perform a complete search.

16/70 . of video data

NOTE

In groups G06F 16/70, G06F 16/71, G06F 16/73, G06F 16/732, G06F 16/7328, G06F 16/7335, G06F 16/7343, G06F 16/735, G06F 16/738, G06F 16/739, G06F 16/74, G06F 16/743, G06F 16/745, G06F 16/78 and G06F 16/75, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/78, G06F 16/783, G06F 16/7834, G06F 16/7837, G06F 16/784, G06F 16/7844, G06F 16/7847, G06F 16/785, G06F 16/7854, G06F 16/7857, G06F 16/786, G06F 16/7864, G06F 16/7867 and G06F 16/787.

WARNING

Group G06F 16/70 is impacted by reclassification into group G06F 16/75.

Groups G06F 16/70 and G06F 16/75 should be considered in order to perform a complete search.

16/71 . . Indexing; Data structures therefor; Storage structures

16/73 . . Querying

WARNING

Group G06F 16/73 is impacted by reclassification into group G06F 16/732.

Groups G06F 16/73 and G06F 16/732 should be considered in order to perform a complete search.

16/732 . . . Query formulation

WARNING

Group G06F 16/732 is incomplete pending reclassification of documents from group G06F 16/73.

Groups G06F 16/73 and G06F 16/732 should be considered in order to perform a complete search.

16/7328 . . . . {Query by example, e.g. a complete video frame or video sequence (graphical querying G06F 16/7335)}

16/7335 . . . . {Graphical querying, e.g. query-by-region, query-by-sketch, query-by-trajectory, GUIs for designating a person/face/object as a query predicate (end-user interface involving hot spots associated with the video H04N 21/4725; end-user interface for selecting a Region of Interest H04N 21/4728)}

16/7343 . . . . {Query language or query format}

16/735 . . . Filtering based on additional data, e.g. user or group profiles

16/738 . . . Presentation of query results

16/739 . . . . {in form of a video summary, e.g. the video summary being a video sequence, a composite still image or having synthesized frames}

16/74 . . Browsing; Visualisation therefor (end-user interfaces for requesting or interacting with video content, e.g. video on demand interfaces or electronic program guides, H04N 21/472)

16/743 . . . {a collection of video files or sequences}

16/745 . . . {the internal structure of a single video sequence}

16/748 . . . {Hypervideo (linking data to content, e.g. by linking an URL to a video object in the context of video distribution systems H04N 21/858)}

Samsung Ex. 1123, p. 35
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/75 . . Clustering; Classification

WARNING

Group G06F 16/75 is incomplete pending reclassification of documents from group G06F 16/70.

Groups G06F 16/70 and G06F 16/75 should be considered in order to perform a complete search.

16/78 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/78 is impacted by reclassification into group G06F 16/787.

Groups G06F 16/78 and G06F 16/787 should be considered in order to perform a complete search.

16/783 . . . using metadata automatically derived from the content

16/7834 . . . . {using audio features}

16/7837 . . . . {using objects detected or recognised in the video content}

16/784 . . . . . {the detected or recognised objects being people}

16/7844 . . . . {using original textual content or text extracted from visual content or transcript of audio data}

16/7847 . . . . {using low-level visual features of the video content}

16/785 . . . . . {using colour or luminescence}

16/7854 . . . . . {using shape (G06F 16/7837 takes precedence)}

16/7857 . . . . . {using texture (G06F 16/7837 takes precedence)}

16/786 . . . . . {using motion, e.g. object motion or camera motion}

16/7864 . . . . . {using domain-transform features, e.g. DCT or wavelet transform coefficients}

16/7867 . . . {using information manually generated, e.g. tags, keywords, comments, title and artist information, manually generated time, location and usage information, user ratings}

WARNING

Group G06F 16/7867 is impacted by reclassification into group G06F 16/787.

Groups G06F 16/7867 and G06F 16/787 should be considered in order to perform a complete search.

16/787 . . . using geographical or spatial information, e.g. location

WARNING

Group G06F 16/787 is incomplete pending reclassification of documents from groups G06F 16/78 and G06F 16/7867.

Groups G06F 16/78, G06F 16/7867, and G06F 16/787 should be considered in order to perform a complete search.

16/80 . of semi-structured data, e.g. markup language structured data such as SGML, XML or HTML (content-based retrieval of web data G06F 16/95)

16/81 . . Indexing, e.g. XML tags; Data structures therefor; Storage structures

WARNING

Group G06F 16/81 is incomplete pending reclassification of documents from group G06F 16/83.

Groups G06F 16/83 and G06F 16/81 should be considered in order to perform a complete search.

16/83 . . Querying

WARNING

Group G06F 16/83 is impacted by reclassification into groups G06F 16/81 and G06F 16/835.

Groups G06F 16/83, G06F 16/81, and G06F 16/835 should be considered in order to perform a complete search.

16/832 . . . Query formulation

16/835 . . . Query processing

WARNING

Group G06F 16/835 is incomplete pending reclassification of documents from group G06F 16/83.

Groups G06F 16/83 and G06F 16/835 should be considered in order to perform a complete search.

16/8358 . . . . {Query translation}

16/8365 . . . . {Query optimisation}

16/8373 . . . . {Query execution}

16/838 . . . Presentation of query results

16/84 . . Mapping; Conversion

16/86 . . . {Mapping to a database}

16/88 . . . {Mark-up to mark-up conversion (conversion for visualization in web browsing G06F 16/9577)}

16/90 . Details of database functions independent of the retrieved data types

NOTE

In groups G06F 16/90, G06F 16/901, G06F 16/9014, G06F 16/9017, G06F 16/902, G06F 16/9024, G06F 16/9027, G06F 16/903, G06F 16/9032, G06F 16/90324, G06F 16/90328, G06F 16/90332, G06F 16/90335, G06F 16/90339, G06F 16/90344, G06F 16/90348, G06F 16/9035, G06F 16/9038, G06F 16/904, and G06F 16/906, subject matter relevant to retrieval characterised by using metadata, when it is determined to be novel and non-obvious, must also be classified in groups G06F 16/907, G06F 16/907, and G06F 16/909.

Samsung Ex. 1123, p. 36
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

G06F 16/90 (continued)

WARNING

Group G06F 16/90 is impacted by reclassification into group G06F 16/906.

Groups G06F 16/90 and G06F 16/906 should be considered in order to perform a complete search.

16/901 . . Indexing; Data structures therefor; Storage structures (for retrieval from the web G06F 16/951)

16/9014 . . . {hash tables}

16/9017 . . . {using directory or table look-up (use of a directory or look-up table in file systems G06F 16/13)}

16/902 . . . . {using more than one table in sequence, i.e. systems with three or more layers}

16/9024 . . . {Graphs; Linked lists (G06F 16/9027 takes precedence)}

16/9027 . . . {Trees}

16/903 . . Querying (for retrieval from the web G06F 16/953)

WARNING

Group G06F 16/903 is impacted by reclassification into group G06F 16/9035.

Groups G06F 16/903 and G06F 16/9035 should be considered in order to perform a complete search.

16/9032 . . . Query formulation

16/90324 . . . . {using system suggestions}

16/90328 . . . . . {using search space presentation or visualization, e.g. category or range presentation and selection}

16/90332 . . . . {Natural language query formulation or dialogue systems}

16/90335 . . . {Query processing}

16/90339 . . . . {by using parallel associative memories or content-addressable memories}

16/90344 . . . . {by using string matching techniques}

16/90348 . . . . {by searching ordered data, e.g. alpha-numerically ordered data}

16/9035 . . . Filtering based on additional data, e.g. user or group profiles

WARNING

Group G06F 16/9035 is incomplete pending reclassification of documents from group G06F 16/903.

Groups G06F 16/903 and G06F 16/9035 should be considered in order to perform a complete search.

16/9038 . . . Presentation of query results

16/904 . . Browsing; Visualisation therefor (for navigating the web G06F 16/954; browsing optimisation for the web G06F 16/957)

16/906 . . Clustering; Classification

WARNING

Group G06F 16/906 is incomplete pending reclassification of documents from group G06F 16/90.

Groups G06F 16/90 and G06F 16/906 should be considered in order to perform a complete search.

16/907 . . Retrieval characterised by using metadata, e.g. metadata not derived from the content or metadata generated manually

WARNING

Group G06F 16/907 is impacted by reclassification into groups G06F 16/908 and G06F 16/909.

Groups G06F 16/907, G06F 16/908, and G06F 16/909 should be considered in order to perform a complete search.

16/908 . . . using metadata automatically derived from the content

WARNING

Group G06F 16/908 is incomplete pending reclassification of documents from group G06F 16/907.

Groups G06F 16/907 and G06F 16/908 should be considered in order to perform a complete search.

16/909 . . . using geographical or spatial information, e.g. location (spatiotemporally dependent retrieval from the web G06F 16/9537)

WARNING

Group G06F 16/909 is incomplete pending reclassification of documents from group G06F 16/907.

Groups G06F 16/907 and G06F 16/909 should be considered in order to perform a complete search.

16/93 . . Document management systems

16/94 . . . {Hypermedia (Hyperlinking G06F 40/134)}

16/95 . . Retrieval from the web

16/951 . . . Indexing; Web crawling techniques

WARNING

Group G06F 16/951 is impacted by reclassification into groups G06F 16/953, G06F 16/9532 and G06F 16/9538.

All groups listed in this Warning should be considered in order to perform a complete search.

Samsung Ex. 1123, p. 37
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

16/953 . . . Querying, e.g. by the use of web search engines

WARNING

Group G06F 16/953 is incomplete pending reclassification of documents from group G06F 16/951.

Groups G06F 16/951 and G06F 16/953 should be considered in order to perform a complete search.

16/9532 . . . . Query formulation

WARNING

Group G06F 16/9532 is incomplete pending reclassification of documents from group G06F 16/951.

Groups G06F 16/951 and G06F 16/9532 should be considered in order to perform a complete search.

16/9535 . . . . Search customisation based on user profiles and personalisation

WARNING

Group G06F 16/9535 is impacted by reclassification into groups G06F 16/9536 and G06F 16/9538.

Groups G06F 16/9535, G06F 16/9536, and G06F 16/9538 should be considered in order to perform a complete search.

16/9536 . . . . Search customisation based on social or collaborative filtering

WARNING

Group G06F 16/9536 is incomplete pending reclassification of documents from group G06F 16/9535.

Groups G06F 16/9535 and G06F 16/9536 should be considered in order to perform a complete search.

16/9537 . . . . Spatial or temporal dependent retrieval, e.g. spatiotemporal queries

16/9538 . . . . Presentation of query results

WARNING

Group G06F 16/9538 is incomplete pending reclassification of documents from groups G06F 16/951 and G06F 16/9535.

Groups G06F 16/951, G06F 16/9535, and G06F 16/9538 should be considered in order to perform a complete search.

16/954 . . . Navigation, e.g. using categorised browsing

16/955 . . . using information identifiers, e.g. uniform resource locators [URL]

16/9554 . . . . {by using bar codes}

16/9558 . . . . {Details of hyperlinks; Management of linked annotations}

16/9562 . . . . {Bookmark management}

16/9566 . . . . {URL specific, e.g. using aliases, detecting broken or misspelled links}

16/957 . . . Browsing optimisation, e.g. caching or content distillation

16/9574 . . . . {of access to content, e.g. by caching}

16/9577 . . . . {Optimising the visualization of content, e.g. distillation of HTML documents}

16/958 . . . Organisation or management of web site content, e.g. publishing, maintaining pages or automatic linking

16/972 . . . . {Access to data in other repository systems, e.g. legacy data or dynamic Web page generation}

16/986 . . . . {Document structures and storage, e.g. HTML extensions}

17/00 Digital computing or data processing equipment or methods, specially adapted for specific functions (information retrieval, database structures or file system structures therefor G06F 16/00)

17/10 . Complex mathematical operations {(function generation by table look-up G06F 1/03; evaluation of elementary functions by calculation G06F 7/544)}

17/11 . . for solving equations {, e.g. nonlinear equations, general mathematical optimization problems (optimization specially adapted for a specific administrative, business or logistic context G06Q 10/04)}

17/12 . . . Simultaneous equations {, e.g. systems of linear equations}

17/13 . . . Differential equations (using digital differential analysers G06F 7/64)

17/14 . . Fourier, Walsh or analogous domain transformations {, e.g. Laplace, Hilbert, Karhunen-Loeve, transforms (for correlation function computation G06F 17/156; spectrum analysers G01R 23/16)}

17/141 . . . {Discrete Fourier transforms}

17/142 . . . . {Fast Fourier transforms, e.g. using a Cooley-Tukey type algorithm}

17/144 . . . . {Prime factor Fourier transforms, e.g. Winograd transforms, number theoretic transforms}

17/145 . . . {Square transforms, e.g. Hadamard, Walsh, Haar, Hough, Slant transforms}

17/147 . . . {Discrete orthonormal transforms, e.g. discrete cosine transform, discrete sine transform, and variations therefrom, e.g. modified discrete cosine transform, integer transforms approximating the discrete cosine transform (G06F 17/145 takes precedence)}

17/148 . . . {Wavelet transforms}

17/15 . . Correlation function computation {including computation of convolution operations (arithmetic circuits for sum of products per se, e.g. multiply-accumulators G06F 7/5443; digital filters, e.g. FIR, IIR, adaptive filters H03H 17/00)}

17/153 . . . {Multidimensional correlation or convolution}

17/156 . . . {using a domain transform, e.g. Fourier transform, polynomial transform, number theoretic transform}

17/16 . . Matrix or vector computation {, e.g. matrix-matrix or matrix-vector multiplication, matrix factorization (matrix transposition G06F 7/78)}

17/17 . . Function evaluation by approximation methods, e.g. inter- or extrapolation, smoothing, least mean square method ({G06F 17/18 takes precedence } ; interpolation for numerical control G05B 19/18)

Samsung Ex. 1123, p. 38
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

17/175 . . . {of multidimensional data}
17/18 . . for evaluating statistical data {, e.g. average values, frequency distributions, probability functions, regression analysis (forecasting specially adapted for a specific administrative, business or logistic context G06Q 10/04)}
17/40 . Data acquisition and logging (for input to computer G06F 3/00)

18/00 Pattern recognition
18/10 . Pre-processing; Data cleansing
18/15 . . Statistical pre-processing, e.g. techniques for normalisation or restoring missing data
18/20 . Analysing
18/21 . . Design or setup of recognition systems or techniques; Extraction of features in feature space; Blind source separation
18/211 . . . Selection of the most significant subset of features
18/2111 . . . . by using evolutionary computational techniques, e.g. genetic algorithms
18/2113 . . . . by ranking or filtering the set of features, e.g. using a measure of variance or of feature cross-correlation
18/2115 . . . . by evaluating different subsets according to an optimisation criterion, e.g. class separability, forward selection or backward elimination
18/213 . . . Feature extraction, e.g. by transforming the feature space; Summarisation; Mappings, e.g. subspace methods
18/2131 . . . . based on a transform domain processing, e.g. wavelet transform
18/2132 . . . . based on discrimination criteria, e.g. discriminant analysis
18/21322 . . . . . {Rendering the within-class scatter matrix non-singular}
18/21324 . . . . . {involving projections, e.g. Fisherface techniques}
18/21326 . . . . . {involving optimisations, e.g. using regularisation techniques}
18/21328 . . . . . {involving subspace restrictions, e.g. nullspace techniques}
18/2133 . . . . based on naturality criteria, e.g. with non-negative factorisation or negative correlation
18/2134 . . . . based on separation criteria, e.g. independent component analysis
18/21342 . . . . . {using statistical independence, i.e. minimising mutual information or maximising non-gaussianity}
18/21343 . . . . . {using decorrelation or non-stationarity, e.g. minimising lagged cross-correlations}
18/21345 . . . . . {enforcing sparsity or involving a domain transformation}
18/21347 . . . . . {using domain transformations}
18/21348 . . . . . {overcoming non-stationarity or permutations}
18/2135 . . . . based on approximation criteria, e.g. principal component analysis
18/21355 . . . . . {nonlinear criteria, e.g. embedding a manifold in a Euclidean space}
18/2136 . . . . based on sparsity criteria, e.g. with an overcomplete basis
18/2137 . . . . based on criteria of topology preservation, e.g. multidimensional scaling or self-organising maps
18/21375 . . . . . {involving differential geometry, e.g. embedding of pattern manifold}
18/214 . . . Generating training patterns; Bootstrap methods, e.g. bagging or boosting
18/2148 . . . . {characterised by the process organisation or structure, e.g. boosting cascade}
18/2155 . . . . {characterised by the incorporation of unlabelled data, e.g. multiple instance learning [MIL], semi-supervised techniques using expectation-maximisation [EM] or naïve labelling}
18/2163 . . . {Partitioning the feature space}
18/217 . . . {Validation; Performance evaluation; Active pattern learning techniques}
18/2178 . . . . {based on feedback of a supervisor}
18/2185 . . . . . {the supervisor being an automated module, e.g. intelligent oracle}
18/2193 . . . . {based on specific statistical tests}
18/22 . . Matching criteria, e.g. proximity measures
18/23 . . Clustering techniques
18/231 . . . Hierarchical techniques, i.e. dividing or merging pattern sets so as to obtain a dendrogram
18/232 . . . Non-hierarchical techniques
18/2321 . . . . using statistics or function optimisation, e.g. modelling of probability density functions
18/23211 . . . . . with adaptive number of clusters
18/23213 . . . . . with fixed number of clusters, e.g. K-means clustering
18/2323 . . . . based on graph theory, e.g. minimum spanning trees [MST] or graph cuts
18/2325 . . . . using vector quantisation
18/2337 . . . . using fuzzy logic, i.e. fuzzy clustering
18/24 . . Classification techniques
18/241 . . . relating to the classification model, e.g. parametric or non-parametric approaches
18/2411 . . . . based on the proximity to a decision surface, e.g. support vector machines
18/2413 . . . . based on distances to training or reference patterns
18/24133 . . . . . {Distances to prototypes}
18/24137 . . . . . {Distances to cluster centroïds}
18/2414 . . . . . {Smoothing the distance, e.g. radial basis function networks [RBFN]}
18/24143 . . . . . {Distances to neighbourhood prototypes, e.g. restricted Coulomb energy networks [RCEN]}
18/24147 . . . . . {Distances to closest patterns, e.g. nearest neighbour classification}
18/2415 . . . . based on parametric or probabilistic models, e.g. based on likelihood ratio or false acceptance rate versus a false rejection rate
18/24155 . . . . . {Bayesian classification}
18/243 . . . relating to the number of classes
18/2431 . . . . Multiple classes
18/24317 . . . . {Piecewise classification, i.e. whereby each classification requires several discriminant rules}
18/24323 . . . . {Tree-organised classifiers}

Samsung Ex. 1123, p. 39
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

18/2433 . . . . Single-class perspective, e.g. one-against-all classification; Novelty detection; Outlier detection
18/245 . . . relating to the decision surface
18/2451 . . . . linear, e.g. hyperplane
18/2453 . . . . non-linear, e.g. polynomial classifier
18/24765 . . . {Rule-based classification}
18/25 . . Fusion techniques
18/251 . . . {of input or preprocessed data}
18/253 . . . {of extracted features}
18/254 . . . {of classification results, e.g. of results related to same input data}
18/256 . . . . {of results relating to different input data, e.g. multimodal recognition}
18/257 . . . {Belief theory, e.g. Dempster-Shafer}
18/259 . . . {Fusion by voting}
18/26 . . Discovering frequent patterns
18/27 . . Regression, e.g. linear or logistic regression
18/28 . . Determining representative reference patterns, e.g. by averaging or distorting; Generating dictionaries
18/285 . . {Selection of pattern recognition techniques, e.g. of classifiers in a multi-classifier system}
18/29 . . {Graphical models, e.g. Bayesian networks}
18/295 . . . {Markov models or related models, e.g. semi-Markov models; Markov random fields; Networks embedding Markov models}
18/30 . Post-processing
18/40 . Software arrangements specially adapted for pattern recognition, e.g. user interfaces or toolboxes therefor
18/41 . . {Interactive pattern learning with a human teacher}

21/00 Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity

21/10 . Protecting distributed programs or content, e.g. vending or licensing of copyrighted material (protection in video systems or pay television H04N 7/16) {; Digital rights management [DRM]}

NOTE

In this group, the following terms or expressions are used with the meaning indicated:
- "content" means any intellectually created work whose copyright is to be safeguarded.

21/101 . . {by binding digital rights to specific entities}
21/1011 . . . {to devices}
21/1012 . . . {to domains}
21/1013 . . . {to locations}
21/1014 . . . {to tokens}
21/1015 . . . {to users}
21/105 . . {Arrangements for software license management or administration, e.g. for managing licenses at corporate level}
21/106 . . {Enforcing content protection by specific content processing}
21/1062 . . . {Editing}
21/1063 . . . {Personalisation}
21/1064 . . . {Restricting content processing at operating system level}
21/1065 . . . {Generating enhanced content}
21/1066 . . . {Hiding content}
21/107 . . {License processing; Key processing}
21/1073 . . . {Conversion}
21/1074 . . . {Definition}
21/1075 . . . {Editing}
21/1076 . . . {Revocation}
21/1077 . . . {Recurrent authorisation}
21/1078 . . . {Logging; Metering}
21/1079 . . . {Return}
21/108 . . {Transfer of content, software, digital rights or licenses}
21/1082 . . . {Backup or restore}
21/1083 . . . {Partial license transfers}
21/1084 . . . {via third party}
21/1085 . . . {Content sharing, e.g. peer-to-peer [P2P]}
21/1086 . . . {Superdistribution}
21/1087 . . . {Synchronisation}
21/1088 . . . {by using transactions with atomicity, consistency, or isolation and durability [ACID] properties}
21/109 . . {by using specially-adapted hardware at the client}
21/12 . . Protecting executable software
21/121 . . . {Restricting unauthorised execution of programs}
21/123 . . . . {by using dedicated hardware, e.g. dongles, smart cards, cryptographic processors, global positioning systems [GPS] devices}
21/125 . . . . {by manipulating the program code, e.g. source code, compiled code, interpreted code, machine code}
21/126 . . . . . {Interacting with the operating system}
21/128 . . . . {involving web programs, i.e. using technology especially used in internet, generally interacting with a web browser, e.g. hypertext markup language [HTML], applets, java}
21/14 . . . against software analysis or reverse engineering, e.g. by obfuscation
21/16 . . Program or content traceability, e.g. by watermarking
21/30 . Authentication, i.e. establishing the identity or authorisation of security principals
21/305 . . {by remotely controlling device operation}
21/31 . . User authentication
21/313 . . . {using a call-back technique via a telephone network}
21/316 . . . {by observing the pattern of computer usage, e.g. typical user behaviour}
21/32 . . . using biometric data, e.g. fingerprints, iris scans or voiceprints
21/33 . . . using certificates
21/335 . . . . {for accessing specific resources, e.g. using Kerberos tickets}
21/34 . . . involving the use of external additional devices, e.g. dongles or smart cards
21/35 . . . . communicating wirelessly
21/36 . . . by graphic or iconic representation
21/40 . . . by quorum, i.e. whereby two or more security principals are required
21/41 . . . where a single sign-on provides access to a plurality of computers
21/42 . . . using separate channels for security data

Samsung Ex. 1123, p. 40
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

21/43 . . . . wireless channels
21/44 . . Program or device authentication
21/445 . . . {by mutual authentication, e.g. between devices or programs}
21/45 . . Structures or tools for the administration of authentication
21/46 . . . by designing passwords or checking the strength of passwords
21/50 . Monitoring users, programs or devices to maintain the integrity of platforms, e.g. of processors, firmware or operating systems
21/51 . . at application loading time, e.g. accepting, rejecting, starting or inhibiting executable software based on integrity or source reliability
21/52 . . during program execution, e.g. stack integrity {; Preventing unwanted data erasure; Buffer overflow}
21/53 . . . by executing in a restricted environment, e.g. sandbox or secure virtual machine
21/54 . . . by adding security routines or objects to programs
21/55 . . Detecting local intrusion or implementing counter-measures
21/552 . . . {involving long-term monitoring or reporting}
21/554 . . . {involving event detection and direct action}
21/556 . . . {involving covert channels, i.e. data leakage between processes (inhibiting the analysis of circuitry or operation with measures against power attack G06F 21/755)}
21/56 . . . Computer malware detection or handling, e.g. anti-virus arrangements
21/561 . . . . {Virus type analysis}
21/562 . . . . {Static detection}
21/563 . . . . . {by source code analysis}
21/564 . . . . . {by virus signature recognition}
21/565 . . . . . {by checking file integrity}
21/566 . . . . {Dynamic detection, i.e. detection performed at run-time, e.g. emulation, suspicious activities}
21/567 . . . . {using dedicated hardware}
21/568 . . . . {eliminating virus, restoring damaged files}
21/57 . . Certifying or maintaining trusted computer platforms, e.g. secure boots or power-downs, version controls, system software checks, secure updates or assessing vulnerabilities
21/572 . . . {Secure firmware programming, e.g. of basic input output system [BIOS]}
21/575 . . . {Secure boot}
21/577 . . . {Assessing vulnerabilities and evaluating computer system security}
21/60 . Protecting data
21/602 . . {Providing cryptographic facilities or services}
21/604 . . {Tools and structures for managing or administering access control systems}
21/606 . . {by securing the transmission between two devices or processes}
21/608 . . . {Secure printing}
21/62 . . Protecting access to data via a platform, e.g. using keys or access control rules
21/6209 . . . {to a single file or object, e.g. in a secure envelope, encrypted and accessed using a key, or with access control rules appended to the object itself}
21/6218 . . . {to a system of files or objects, e.g. local or distributed file system or database}
21/6227 . . . . {where protection concerns the structure of data, e.g. records, types, queries}
21/6236 . . . . {between heterogeneous systems}
21/6245 . . . . {Protecting personal data, e.g. for financial or medical purposes}
21/6254 . . . . . {by anonymising data, e.g. decorrelating personal data from the owner's identification}

WARNING

Group G06F 21/6254 is incomplete pending reclassification of documents from group G06Q 30/0615.

Groups G06Q 30/0615 and G06F 21/6254 should be considered in order to perform a complete search.

21/6263 . . . . . {during internet communication, e.g. revealing personal data from cookies}
21/6272 . . . . {by registering files or documents with a third party}
21/6281 . . . . {at program execution time, where the protection is within the operating system}
21/629 . . . {to features or functions of an application}
21/64 . . Protecting data integrity, e.g. using checksums, certificates or signatures
21/645 . . . {using a third party}
21/70 . Protecting specific internal or peripheral components, in which the protection of a component leads to protection of the entire computer
21/71 . . to assure secure computing or processing of information
21/72 . . . in cryptographic circuits
21/725 . . . . {operating on a secure reference time value}
21/73 . . . by creating or determining hardware identification, e.g. serial numbers
21/74 . . . operating in dual or compartmented mode, i.e. at least one secure mode
21/75 . . . by inhibiting the analysis of circuitry or operation
21/755 . . . . {with measures against power attack}
21/76 . . . in application-specific integrated circuits [ASIC] or field-programmable devices, e.g. field-programmable gate arrays [FPGA] or programmable logic devices [PLD]
21/77 . . . in smart cards
21/78 . . to assure secure storage of data (address-based protection against unauthorised use of memory G06F 12/14; record carriers for use with machines and with at least a part designed to carry digital markings G06K 19/00)
21/79 . . . in semiconductor storage media, e.g. directly-addressable memories
21/80 . . . in storage media based on magnetic or optical technology, e.g. disks with sectors (preventing unauthorised reproduction or copying of disc-type recordable media G11B 20/00)
21/805 . . . . {using a security table for the storage sub-system}
21/81 . . by operating on the power supply, e.g. enabling or disabling power-on, sleep or resume operations
21/82 . . Protecting input, output or interconnection devices

Samsung Ex. 1123, p. 41
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

21/83 . . . input devices, e.g. keyboards, mice or controllers thereof

21/84 . . . output devices, e.g. displays or monitors

21/85 . . . interconnection devices, e.g. bus-connected or in-line devices

21/86 . . Secure or tamper-resistant housings

21/87 . . . by means of encapsulation, e.g. for integrated circuits

21/88 . . Detecting or preventing theft or loss

30/00 Computer-aided design [CAD]

NOTE

In this group, it is desirable to add the indexing codes of groups G06F 2111/00 - G06F 2119/00.

WARNING

Group G06F 30/00 is impacted by reclassification into groups G06F 30/10, G06F 30/12, G06F 2111/00 - G06F 2119/22.

Groups G06F 30/00, G06F 30/10, G06F 30/12, and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/10 . Geometric CAD

WARNING

Group G06F 30/10 is incomplete pending reclassification of documents from group G06F 30/00.

Groups G06F 30/00 and G06F 30/10 should be considered in order to perform a complete search.

30/12 . . characterised by design entry means specially adapted for CAD, e.g. graphical user interfaces [GUI] specially adapted for CAD

WARNING

Group G06F 30/12 is incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, and G06F 30/18.

All groups listed in this Warning should be considered in order to perform a complete search.

30/13 . . Architectural design, e.g. computer-aided architectural design [CAAD] related to design of buildings, bridges, landscapes, production plants or roads

30/15 . . Vehicle, aircraft or watercraft design

30/17 . . Mechanical parametric or variational design

WARNING

Group G06F 30/17 is impacted by reclassification into groups G06F 30/12 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/17, G06F 30/12 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/18 . . Network design, e.g. design based on topological or interconnect aspects of utility systems, piping, heating ventilation air conditioning [HVAC] or cabling (circuit design at the physical level G06F 30/39; network planning tools for wireless communication networks H04W 16/18)

WARNING

Group G06F 30/18 is impacted by reclassification into groups G06F 30/12 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/18, G06F 30/12 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/20 . Design optimisation, verification or simulation (optimisation, verification or simulation of circuit designs G06F 30/30)

WARNING

Group G06F 30/20 is impacted by reclassification into groups G06F 30/25, G06F 30/27, G06F 30/28 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/20, G06F 30/25, G06F 30/27, G06F 30/28 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/22 . . using Petri net models

30/23 . . using finite element methods [FEM] or finite difference methods [FDM]

WARNING

Group G06F 30/23 is impacted by reclassification into groups G06F 30/25, G06F 30/367, G06F 30/398 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/23, G06F 30/25, G06F 30/367, G06F 30/398 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/25 . . using particle-based methods

WARNING

Group G06F 30/25 is incomplete pending reclassification of documents from groups G06F 30/20 and G06F 30/23.

Groups G06F 30/20, G06F 30/23, and G06F 30/25 should be considered in order to perform a complete search.

30/27 . . using machine learning, e.g. artificial intelligence, neural networks, support vector machines [SVM] or training a model

WARNING

Group G06F 30/27 is incomplete pending reclassification of documents from group G06F 30/20.

Groups G06F 30/20 and G06F 30/27 should be considered in order to perform a complete search.

Samsung Ex. 1123, p. 42
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

30/28 . . using fluid dynamics, e.g. using Navier-Stokes equations or computational fluid dynamics [CFD]

WARNING

Group G06F 30/28 is incomplete pending reclassification of documents from group G06F 30/20.

Groups G06F 30/20 and G06F 30/28 should be considered

30/30 . Circuit design

WARNING

Group G06F 30/30 is impacted by reclassification into groups G06F 30/31, G06F 30/32, G06F 30/323, G06F 30/333, G06F 30/337, G06F 30/34, G06F 30/343, G06F 30/347, G06F 30/38 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/30, G06F 30/31, G06F 30/32, G06F 30/323, G06F 30/333, G06F 30/337, G06F 30/34, G06F 30/343, G06F 30/347, G06F 30/38 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/31 . . Design entry, e.g. editors specifically adapted for circuit design

WARNING

Group G06F 30/31 is incomplete pending reclassification of documents from groups G06F 30/30, G06F 30/34, and G06F 30/36.

All groups listed in this Warning should be considered in order to perform a complete search.

30/32 . . Circuit design at the digital level (reconfigurable circuits G06F 30/34)

WARNING

Group G06F 30/32 is incomplete pending reclassification of documents from group G06F 30/30.

Groups G06F 30/30 and G06F 30/32 should be considered in order to perform a complete search.

30/323 . . . Translation or migration, e.g. logic to logic, hardware description language [HDL] translation or netlist translation

WARNING

Group G06F 30/323 is incomplete pending reclassification of documents from groups G06F 30/30 and G06F 30/327.

Groups G06F 30/30, G06F 30/327, and G06F 30/323 should be considered in order to perform a complete search.

30/327 . . . Logic synthesis; Behaviour synthesis, e.g. mapping logic, HDL to netlist, high-level language to RTL or netlist

WARNING

Group G06F 30/327 is impacted by reclassification into groups G06F 30/323 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/327, G06F 30/323 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/33 . . . Design verification, e.g. functional simulation or model checking

WARNING

Group G06F 30/33 is impacted by reclassification into groups G06F 30/3308, G06F 30/3315 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/33, G06F 30/3308, G06F 30/3315 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/3308 . . . . using simulation

WARNING

Group G06F 30/3308 is incomplete pending reclassification of documents from group G06F 30/33.

Groups G06F 30/33 and G06F 30/3308 should be considered in order to perform a complete search.

30/331 . . . . . with hardware acceleration, e.g. by using field programmable gate array [FPGA] or emulation

30/3312 . . . . . Timing analysis

WARNING

Group G06F 30/3312 is impacted by reclassification into groups G06F 30/3315 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/3312, G06F 30/3315 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/3315 . . . . using static timing analysis [STA]

WARNING

Group G06F 30/3315 is incomplete pending reclassification of documents from groups G06F 30/33 and G06F 30/3312.

Groups G06F 30/33, G06F 30/3312, and G06F 30/3315 should be considered in order to perform a complete search.

30/3323 . . . . using formal methods, e.g. equivalence checking or property checking

Samsung Ex. 1123, p. 43
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

30/333 . . . Design for testability [DFT], e.g. scan chain or built-in self-test [BIST]

WARNING

Group G06F 30/333 is incomplete pending reclassification of documents from group G06F 30/30.

Groups G06F 30/30 and G06F 30/333 should be considered in order to perform a complete search.

30/337 . . . Design optimisation

WARNING

Group G06F 30/337 is incomplete pending reclassification of documents from group G06F 30/30.

Groups G06F 30/30 and G06F 30/337 should be considered in order to perform a complete search.

30/34 . . for reconfigurable circuits, e.g. field programmable gate arrays [FPGA] or programmable logic devices [PLD]

WARNING

Group G06F 30/34 is incomplete pending reclassification of documents from group G06F 30/30.

Group G06F 30/34 is impacted by reclassification into groups G06F 30/31, G06F 30/343, G06F 30/347 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/34, G06F 30/31, G06F 30/343, G06F 30/347 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/343 . . . Logical level

WARNING

Group G06F 30/343 is incomplete pending reclassification of documents from groups G06F 30/30 and G06F 30/34.

Groups G06F 30/30, G06F 30/34, and G06F 30/343 should be considered in order to perform a complete search.

30/347 . . . Physical level, e.g. placement or routing

WARNING

Group G06F 30/347 is incomplete pending reclassification of documents from groups G06F 30/30, G06F 30/34, and G06F 30/39.

Groups G06F 30/347, G06F 30/30, G06F 30/34 and G06F 30/39 should be considered in order to perform a complete search.

30/35 . . Delay-insensitive circuit design, e.g. asynchronous or self-timed

30/36 . . Circuit design at the analogue level

WARNING

Group G06F 30/36 is impacted by reclassification into groups G06F 30/31, G06F 30/373, G06F 30/38 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/36, G06F 30/31, G06F 30/373, G06F 30/38 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/367 . . . Design verification, e.g. using simulation, simulation program with integrated circuit emphasis [SPICE], direct methods or relaxation methods

WARNING

Group G06F 30/367 is incomplete pending reclassification of documents from group G06F 30/23.

Groups G06F 30/23 and G06F 30/367 should be considered in order to perform a complete search.

30/373 . . . Design optimisation

WARNING

Group G06F 30/373 is incomplete pending reclassification of documents from group G06F 30/36.

Groups G06F 30/36 and G06F 30/373 should be considered in order to perform a complete search.

30/38 . . Circuit design at the mixed level of analogue and digital signals

WARNING

Group G06F 30/38 is incomplete pending reclassification of documents from groups G06F 30/30 and G06F 30/36.

Groups G06F 30/30, G06F 30/36, and G06F 30/38 should be considered in order to perform a complete search.

30/39 . . Circuit design at the physical level (physical level design for reconfigurable circuits G06F 30/347)

WARNING

Group G06F 30/39 is impacted by reclassification into groups G06F 30/347, G06F 30/396, G06F 30/398 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/39, G06F 30/347, G06F 30/396, G06F 30/398 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

Samsung Ex. 1123, p. 44
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

30/392 . . . Floor-planning or layout, e.g. partitioning or placement

WARNING

Group G06F 30/392 is impacted by reclassification into groups G06F 30/396 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/392, G06F 30/396 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/394 . . . Routing (G06F 30/396 takes precedence)

WARNING

Group G06F 30/394 is impacted by reclassification into groups G06F 30/3947, G06F 30/3953, G06F 30/396 and G06F 2111/00 - G06F 2119/22.

Groups G06F 30/394, G06F 30/3947, G06F 30/3953, G06F 30/396 and G06F 2111/00 - G06F 2119/22 should be considered in order to perform a complete search.

30/3947 . . . . global

WARNING

Group G06F 30/3947 is incomplete pending reclassification of documents from group G06F 30/394.

Groups G06F 30/394 and G06F 30/3947 should be considered in order to perform a complete search.

30/3953 . . . . detailed

WARNING

Group G06F 30/3953 is incomplete pending reclassification of documents from group G06F 30/394.

Groups G06F 30/394 and G06F 30/3953 should be considered in order to perform a complete search.

30/396 . . . Clock trees

WARNING

Group G06F 30/396 is incomplete pending reclassification of documents from groups G06F 30/39, G06F 30/392, and G06F 30/394.

Group G06F 30/396 is also impacted by reclassification into group G06F 2117/04.

All groups listed in this Warning should be considered in order to perform a complete search.

30/398 . . . Design verification or optimisation, e.g. using design rule check [DRC], layout versus schematics [LVS] or finite element methods [FEM] (optical proximity correction [OPC] design processes G03F 1/36)

WARNING

Group G06F 30/398 is incomplete pending reclassification of documents from groups G06F 30/23 and G06F 30/39.

Groups G06F 30/23, G06F 30/39 and G06F 30/398 should be considered in order to perform a complete search.

40/00 Handling natural language data (speech analysis or synthesis, speech recognition G10L)

40/10 . Text processing (natural language analysis G06F 40/20; semantic analysis G06F 40/30; processing or translation of natural language G06F 40/40)

40/103 . . Formatting, i.e. changing of presentation of documents (automatic justification G06F 40/189; automatic line break hyphenation G06F 40/191)

40/106 . . . Display of layout of documents; Previewing

40/109 . . . Font handling; Temporal or kinetic typography

40/111 . . . Mathematical or scientific formatting; Subscripts; Superscripts

40/114 . . . Pagination

40/117 . . . Tagging; Marking up (details of markup languages G06F 40/143); Designating a block; Setting of attributes (style sheets, e.g. eXtensible Stylesheet Language Transformation [XSLT], G06F 40/154)

40/12 . . Use of codes for handling textual entities

40/123 . . . Storage facilities

40/126 . . . Character encoding

40/129 . . . . Handling non-Latin characters, e.g. kana-to-kanji conversion

40/131 . . . Fragmentation of text files, e.g. creating reusable text-blocks; Linking to fragments, e.g. using XInclude; Namespaces

40/134 . . . Hyperlinking

40/137 . . . Hierarchical processing, e.g. outlines

40/14 . . . Tree-structured documents (parsing G06F 40/205; validation G06F 40/226)

40/143 . . . . Markup, e.g. Standard Generalized Markup Language [SGML] or Document Type Definition [DTD]

40/146 . . . . Coding or compression of tree-structured data

40/149 . . . Adaptation of the text data for streaming purposes, e.g. Efficient XML Interchange [EXI] format

40/151 . . . Transformation

40/154 . . . . Tree transformation for tree-structured or markup documents, e.g. XSLT, XSL-FO or stylesheets

40/157 . . . . using dictionaries or tables

40/16 . . . . Automatic learning of transformation rules, e.g. from examples

40/163 . . . Handling of whitespace

40/166 . . Editing, e.g. inserting or deleting

40/169 . . . Annotation, e.g. comment data or footnotes

40/171 . . . by use of digital ink

Samsung Ex. 1123, p. 45
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

40/174 . . . Form filling; Merging
40/177 . . . of tables; using ruled lines
40/18 . . . . of spreadsheets (form-filling G06F 40/174)
40/183 . . . Tabulation, i.e. one-dimensional positioning
40/186 . . . Templates
40/189 . . Automatic justification
40/191 . . Automatic line break hyphenation
40/194 . . Calculation of difference between files
40/197 . . Version control (for software G06F 8/71)
40/20 . Natural language analysis (semantic analysis of natural language G06F 40/30)
40/205 . . Parsing
40/211 . . . Syntactic parsing, e.g. based on context-free grammar [CFG] or unification grammars
40/216 . . . using statistical methods
40/221 . . . Parsing markup language streams (streaming G06F 40/149)
40/226 . . . Validation
40/232 . . Orthographic correction, e.g. spell checking or vowelisation
40/237 . . Lexical tools
40/242 . . . Dictionaries
40/247 . . . Thesauruses; Synonyms
40/253 . . Grammatical analysis; Style critique
40/258 . . Heading extraction; Automatic titling; Numbering
40/263 . . Language identification
40/268 . . Morphological analysis
40/274 . . Converting codes to words; Guess-ahead of partial word inputs
40/279 . . Recognition of textual entities
40/284 . . . Lexical analysis, e.g. tokenisation or collocates
40/289 . . . Phrasal analysis, e.g. finite state techniques or chunking
40/295 . . . . Named entity recognition
40/30 . Semantic analysis
40/35 . . Discourse or dialogue representation
40/40 . Processing or translation of natural language (natural language analysis G06F 40/20; semantic analysis G06F 40/30)
40/42 . . Data-driven translation
40/44 . . . Statistical methods, e.g. probability models
40/45 . . . Example-based machine translation; Alignment
40/47 . . . Machine-assisted translation, e.g. using translation memory
40/49 . . . using very large corpora, e.g. the web
40/51 . . Translation evaluation
40/53 . . Processing of non-Latin text (kana-to-kanji conversion G06F 40/129; vowelisation G06F 40/232)
40/55 . . Rule-based translation
40/56 . . . Natural language generation
40/58 . . Use of machine translation, e.g. for multi-lingual retrieval, for server-side translation for client devices or for real-time translation

2101/00 Indexing scheme relating to the type of digital function generated

2101/02 . Linear multivariable functions, i.e. sum of products
2101/04 . Trigonometric functions
2101/06 . Co-ordinate transformations
2101/08 . Powers or roots
2101/10 . Logarithmic or exponential functions
2101/12 . Reciprocal functions
2101/14 . Probability distribution functions
2101/16 . PCM companding functions

Indexing scheme associated with group G06F 30/00, relating to CAD techniques

2111/00 Details relating to CAD techniques

WARNING

Groups G06F 2111/00 - G06F 2111/20 are incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, and G06F 30/394.

All groups listed in this Warning should be considered in order to perform a complete search.

2111/02 . CAD in a network environment, e.g. collaborative CAD or distributed simulation
2111/04 . Constraint-based CAD
2111/06 . Multi-objective optimisation, e.g. Pareto optimisation using simulated annealing [SA], ant colony algorithms or genetic algorithms [GA]
2111/08 . Probabilistic or stochastic CAD
2111/10 . Numerical modelling
2111/12 . Symbolic schematics
2111/14 . related to nanotechnology
2111/16 . Customisation or personalisation
2111/18 . using virtual or augmented reality
2111/20 . Configuration CAD, e.g. designing by assembling or positioning modules selected from libraries of predesigned modules

Indexing scheme associated with group G06F 30/00, relating to the application field

2113/00 Details relating to the application field

WARNING

Groups G06F 2113/00 - G06F 2113/28 are incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, and G06F 30/394.

All groups listed in this Warning should be considered in order to perform a complete search.

2113/02 . Data centres
2113/04 . Power grid distribution networks
2113/06 . Wind turbines or wind farms
2113/08 . Fluids
2113/10 . Additive manufacturing, e.g. 3D printing
2113/12 . Cloth
2113/14 . Pipes
2113/16 . Cables, cable trees or wire harnesses
2113/18 . Chip packaging
2113/20 . Packaging, e.g. boxes or containers
2113/22 . Moulding
2113/24 . Sheet material
2113/26 . Composites
2113/28 . Fuselage, exterior or interior

Samsung Ex. 1123, p. 46
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

Indexing scheme associated with group G06F 30/00, relating to the type of the circuit

2115/00 Details relating to the type of the circuit

WARNING

Groups G06F 2115/00 - G06F 2115/12 are incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, and G06F 30/394.

All groups listed in this Warning should be considered in order to perform a complete search.

2115/02 . System on chip [SoC] design
2115/04 . Micro electro-mechanical systems [MEMS]
2115/06 . Structured ASICs
2115/08 . Intellectual property [IP] blocks or IP cores
2115/10 . Processors
2115/12 . Printed circuit boards [PCB] or multi-chip modules [MCM]

Indexing scheme associated with group G06F 30/00, relating to the type or aim of the circuit design

2117/00 Details relating to the type or aim of the circuit design

WARNING

Groups G06F 2117/00 - G06F 2117/12 are incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, and G06F 30/394.

All groups listed in this Warning should be considered in order to perform a complete search.

2117/02 . Fault tolerance, e.g. for transient fault suppression
2117/04 . Clock gating

WARNING

Group G06F 2117/04 is incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, G06F 30/394, and G06F 30/396.

All groups listed in this Warning should be considered in order to perform a complete search.

2117/06 . Spare resources, e.g. for permanent fault suppression
2117/08 . HW-SW co-design, e.g. HW-SW partitioning
2117/10 . Buffer insertion
2117/12 . Sizing, e.g. of transistors or gates

Indexing scheme associated with group G06F 30/00, relating to the purpose – mostly applicable to circuits – but also relevant for general CAD

2119/00 Details relating to the type or aim of the analysis or the optimisation

WARNING

Groups G06F 2119/00 - G06F 2119/22 are incomplete pending reclassification of documents from groups G06F 30/00, G06F 30/17, G06F 30/18, G06F 30/20, G06F 30/23, G06F 30/30, G06F 30/327, G06F 30/33, G06F 30/3312, G06F 30/34, G06F 30/36, G06F 30/39, G06F 30/392, and G06F 30/394.

All groups listed in this Warning should be considered in order to perform a complete search.

2119/02 . Reliability analysis or reliability optimisation; Failure analysis, e.g. worst case scenario performance, failure mode and effects analysis [FMEA]
2119/04 . Ageing analysis or optimisation against ageing
2119/06 . Power analysis or power optimisation
2119/08 . Thermal analysis or thermal optimisation
2119/10 . Noise analysis or noise optimisation
2119/12 . Timing analysis or timing optimisation
2119/14 . Force analysis or force optimisation, e.g. static or dynamic forces
2119/16 . Equivalence checking
2119/18 . Manufacturability analysis or optimisation for manufacturability
2119/20 . Design reuse, reusability analysis or reusability optimisation
2119/22 . Yield analysis or yield optimisation

Indexing scheme associated with group G06F 18/00, relating to pattern recognition

2123/00 Data types
2123/02 . in the time domain, e.g. time-series data

2200/00 Indexing scheme relating to G06F 1/04 - G06F 1/32
2200/16 . Indexing scheme relating to G06F 1/16 - G06F 1/18
2200/161 . . Indexing scheme relating to constructional details of the monitor
2200/1611 . . . CRT monitor
2200/1612 . . . Flat panel monitor
2200/1613 . . . Supporting arrangements, e.g. for filters or documents associated to a laptop display
2200/1614 . . . Image rotation following screen orientation, e.g. switching from landscape to portrait mode
2200/163 . . Indexing scheme relating to constructional details of the computer
2200/1631 . . . Panel PC, e.g. single housing hosting PC and display panel
2200/1632 . . . Pen holder integrated in the computer

Samsung Ex. 1123, p. 47
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2200/1633 *(Frozen)* . . . Protecting arrangement for the entire housing of the computer

WARNING

Group G06F 2200/1633 is no longer used for the classification of documents as of January 1, 2025.

The content of this group is being reclassified into groups A45C 11/003, G06F 1/1629, G06F 1/1656 and H04M 1/0203.

All groups listed in this Warning should be considered in order to perform a complete search.

2200/1634 . . . Integrated protective display lid, e.g. for touch-sensitive display in handheld computer
2200/1635 . . . Stackable modules
2200/1636 . . . Sensing arrangement for detection of a tap gesture on the housing
2200/1637 . . . Sensing arrangement for detection of housing movement or orientation, e.g. for controlling scrolling or cursor movement on the display of an handheld computer
2200/1638 . . . Computer housing designed to operate in both desktop and tower orientation
2200/1639 . . . Arrangements for locking plugged peripheral connectors
2200/20 . Indexing scheme relating to G06F 1/20
2200/201 . . Cooling arrangements using cooling fluid
2200/202 . . Air convective hinge
2200/203 . . Heat conductive hinge
2200/26 . Indexing scheme relating to G06F 1/26
2200/261 . . PC controlled powerstrip

2201/00 Indexing scheme relating to error detection, to error correction, and to monitoring

2201/80 . Database-specific techniques
2201/805 . Real-time
2201/81 . Threshold
2201/815 . Virtual
2201/82 . Solving problems relating to consistency
2201/825 . the problem or solution involving locking
2201/83 . the solution involving signatures
2201/835 . Timestamp
2201/84 . Using snapshots, i.e. a logical point-in-time copy of the data
2201/845 . Systems in which the redundancy can be transformed in increased performance
2201/85 . Active fault masking without idle spares
2201/855 . Details of asynchronous mirroring using a journal to transfer not-yet-mirrored changes
2201/86 . Event-based monitoring
2201/865 . Monitoring of software
2201/87 . Monitoring of transactions
2201/875 . Monitoring of systems including the internet
2201/88 . Monitoring involving counting
2201/885 . Monitoring specific for caches

2203/00 Indexing scheme relating to G06F 3/00 - G06F 3/048

2203/01 . Indexing scheme relating to G06F 3/01
2203/011 . . Emotion or mood input determined on the basis of sensed human body parameters such as pulse, heart rate or beat, temperature of skin, facial expressions, iris, voice pitch, brain activity patterns
2203/012 . . Walk-in-place systems for allowing a user to walk in a virtual environment while constraining him to a given position in the physical environment
2203/013 . . Force feedback applied to a game
2203/014 . . Force feedback applied to GUI
2203/015 . . Force feedback applied to a joystick
2203/033 . Indexing scheme relating to G06F 3/033
2203/0331 . . Finger worn pointing device
2203/0332 . . Ergonomic shaped mouse adjustable to suit one of both hands
2203/0333 . . Ergonomic shaped mouse for one hand
2203/0334 . . Ergonomic shaped mouse for vertical grip, whereby the hand controlling the mouse is resting or gripping it with an attitude almost vertical with respect of the working surface
2203/0335 . . Finger operated miniaturized mouse
2203/0336 . . Mouse integrated fingerprint sensor
2203/0337 . . Status LEDs integrated in the mouse to provide visual feedback to the user about the status of the input device, the PC, or the user
2203/0338 . . Fingerprint track pad, i.e. fingerprint sensor used as pointing device tracking the fingertip image
2203/0339 . . Touch strips, e.g. orthogonal touch strips to control cursor movement or scrolling; single touch strip to adjust parameter or to implement a row of soft keys
2203/038 . Indexing scheme relating to G06F 3/038
2203/0381 . . Multimodal input, i.e. interface arrangements enabling the user to issue commands by simultaneous use of input devices of different nature, e.g. voice plus gesture on digitizer
2203/0382 . . Plural input, i.e. interface arrangements in which a plurality of input device of the same type are in communication with a PC
2203/0383 . . Remote input, i.e. interface arrangements in which the signals generated by a pointing device are transmitted to a PC at a remote location, e.g. to a PC in a LAN
2203/0384 . . Wireless input, i.e. hardware and software details of wireless interface arrangements for pointing devices
2203/041 . Indexing scheme relating to G06F 3/041 - G06F 3/045
2203/04101 . . 2.5D-digitiser, i.e. digitiser detecting the X/Y position of the input means, finger or stylus, also when it does not touch, but is proximate to the digitiser's interaction surface and also measures the distance of the input means within a short range in the Z direction, possibly with a separate measurement setup
2203/04102 . . Flexible digitiser, i.e. constructional details for allowing the whole digitising part of a device to be flexed or rolled like a sheet of paper
2203/04103 . . Manufacturing, i.e. details related to manufacturing processes specially suited for touch sensitive devices
2203/04104 . . Multi-touch detection in digitiser, i.e. details about the simultaneous detection of a plurality of touching locations, e.g. multiple fingers or pen and finger

Samsung Ex. 1123, p. 48
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2203/04105 . . Pressure sensors for measuring the pressure or force exerted on the touch surface without providing the touch position
2203/04106 . . Multi-sensing digitiser, i.e. digitiser using at least two different sensing technologies simultaneously or alternatively, e.g. for detecting pen and finger, for saving power or for improving position detection
2203/04107 . . Shielding in digitiser, i.e. guard or shielding arrangements, mostly for capacitive touchscreens, e.g. driven shields, driven grounds
2203/04108 . . Touchless 2D- digitiser, i.e. digitiser detecting the X/Y position of the input means, finger or stylus, also when it does not touch, but is proximate to the digitiser's interaction surface without distance measurement in the Z direction
2203/04109 . . FTIR in optical digitiser, i.e. touch detection by frustrating the total internal reflection within an optical waveguide due to changes of optical properties or deformation at the touch location
2203/04111 . . Cross over in capacitive digitiser, i.e. details of structures for connecting electrodes of the sensing pattern where the connections cross each other, e.g. bridge structures comprising an insulating layer, or vias through substrate
2203/04112 . . Electrode mesh in capacitive digitiser: electrode for touch sensing is formed of a mesh of very fine, normally metallic, interconnected lines that are almost invisible to see. This provides a quite large but transparent electrode surface, without need for ITO or similar transparent conductive material
2203/04113 . . Peripheral electrode pattern in resistive digitisers, i.e. electrodes at the periphery of the resistive sheet are shaped in patterns enhancing linearity of induced field
2203/04114 . . Touch screens adapted for alternating or simultaneous interaction with active pens and passive pointing devices like fingers or passive pens
2203/048 . Indexing scheme relating to G06F 3/048
2203/04801 . . Cursor retrieval aid, i.e. visual aspect modification, blinking, colour changes, enlargement or other visual cues, for helping user do find the cursor in graphical user interfaces
2203/04802 . . 3D-info-object: information is displayed on the internal or external surface of a three dimensional manipulable object, e.g. on the faces of a cube that can be rotated by the user
2203/04803 . . Split screen, i.e. subdividing the display area or the window area into separate subareas
2203/04804 . . Transparency, e.g. transparent or translucent windows
2203/04805 . . Virtual magnifying lens, i.e. window or frame movable on top of displayed information to enlarge it for better reading or selection
2203/04806 . . Zoom, i.e. interaction techniques or interactors for controlling the zooming operation
2203/04807 . . Pen manipulated menu
2203/04808 . . Several contacts: gestures triggering a specific function, e.g. scrolling, zooming, right-click, when the user establishes several contacts with the surface simultaneously; e.g. using several fingers or a combination of fingers and pen
2203/04809 . . Textured surface identifying touch areas, e.g. overlay structure for a virtual keyboard

2205/00 Indexing scheme relating to group G06F 5/00; Methods or arrangements for data conversion without changing the order or content of the data handled

2205/003 . Reformatting, i.e. changing the format of data representation
2205/06 . Indexing scheme relating to groups G06F 5/06 - G06F 5/16
2205/061 . . Adapt frequency, i.e. clock frequency at one side is adapted to clock frequency, or average clock frequency, at the other side; Not pulse stuffing only
2205/062 . . Allowing rewriting or rereading data to or from the buffer
2205/063 . . Dynamically variable buffer size
2205/064 . . Linked list, i.e. structure using pointers, e.g. allowing non-contiguous address segments in one logical buffer or dynamic buffer space allocation
2205/065 . . With bypass possibility
2205/066 . . User-programmable number or size of buffers, i.e. number of separate buffers or their size can be allocated freely
2205/067 . . Bidirectional FIFO, i.e. system allowing data transfer in two directions
2205/10 . Indexing scheme relating to groups G06F 5/10 - G06F 5/14
2205/102 . . Avoiding metastability, i.e. preventing hazards, e.g. by using Gray code counters
2205/104 . . Delay lines
2205/106 . . Details of pointers, i.e. structure of the address generators
2205/108 . . Reading or writing the data blockwise, e.g. using an extra end-of-block pointer
2205/12 . Indexing scheme relating to groups G06F 5/12 - G06F 5/14
2205/123 . . Contention resolution, i.e. resolving conflicts between simultaneous read and write operations
2205/126 . . Monitoring of intermediate fill level, i.e. with additional means for monitoring the fill level, e.g. half full flag, almost empty flag

2206/00 Indexing scheme related to dedicated interfaces for computers

2206/10 . Indexing scheme related to storage interfaces for computers, indexing schema related to group G06F 3/06
2206/1004 . . Defragmentation
2206/1008 . . Graphical user interface [GUI]
2206/1012 . . Load balancing
2206/1014 . . One time programmable [OTP] memory, e.g. PROM, WORM
2206/15 . Indexing scheme related to printer interfaces for computers, indexing schema related to group G06F 3/12
2206/1504 . . Cost estimation
2206/1506 . . Degraded mode, e.g. in view of consumables depleted, thresholds reached
2206/1508 . . Load balancing
2206/151 . . Pre-printed media, e.g. media stock, forms, logos
2206/1512 . . Print-to a presentation device other than a printer, e.g. e-reader, e-paper, tablet
2206/1514 . . Sub-job

Samsung Ex. 1123, p. 49
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2206/20 . Indexing scheme related to audio interfaces for computers, indexing schema related to group G06F 3/16

2207/00 Indexing scheme relating to methods or arrangements for processing data by operating upon the order or content of the data handled

2207/02 . Indexing scheme relating to groups G06F 7/02 - G06F 7/026
2207/025 . . String search, i.e. pattern matching, e.g. find identical word or best match in a string
2207/22 . Indexing scheme relating to groups G06F 7/22 - G06F 7/36
2207/222 . . Binary data tree
2207/224 . . External sorting
2207/226 . . Priority queue, i.e. 1 word in, 1 word out sorter; Output word, i.e. min or max of words in memory
2207/228 . . Sorting or merging network
2207/38 . Indexing scheme relating to groups G06F 7/38 - G06F 7/575
2207/3804 . . Details
2207/3808 . . . concerning the type of numbers or the way they are handled
2207/3812 . . . . Devices capable of handling different types of numbers
2207/3816 . . . . . Accepting numbers of variable word length
2207/382 . . . . . Reconfigurable for different fixed word lengths
2207/3824 . . . . . Accepting both fixed-point and floating-point numbers
2207/3828 . . . . Multigauge devices, i.e. capable of handling packed numbers without unpacking them
2207/3832 . . . . Less usual number representations
2207/3836 . . . . . One's complement
2207/384 . . . . . Octal
2207/3844 . . . . . Hexadecimal
2207/3848 . . . . . Unit distance code
2207/3852 . . . . Calculation with most significant digit first
2207/3856 . . . . Operand swapping
2207/386 . . . Special constructional features
2207/3864 . . . . Clockless, i.e. asynchronous operation used as a design principle (G06F 2207/3888 takes precedence)
2207/3868 . . . . Bypass control, i.e. possibility to transfer an operand unchanged to the output
2207/3872 . . . . Precharge of output to prevent leakage
2207/3876 . . . . Alternation of true and inverted stages
2207/388 . . . . Skewing
2207/3884 . . . . Pipelining
2207/3888 . . . . . Wave pipelining, i.e. processing multiple subsequent operand sets asynchronously within each pipeline stage
2207/3892 . . . . . Systolic array
2207/3896 . . . . Bit slicing
2207/48 . . Indexing scheme relating to groups G06F 7/48 - G06F 7/575
2207/4802 . . . Special implementations
2207/4804 . . . . Associative memory or processor
2207/4806 . . . . Cascode or current mode logic
2207/4808 . . . . Charge transfer devices
2207/481 . . . . Counters performing arithmetic operations
2207/4812 . . . . Multiplexers
2207/4814 . . . . Non-logic devices, e.g. operational amplifiers
2207/4816 . . . . Pass transistors
2207/4818 . . . . Threshold devices
2207/482 . . . . . using capacitive adding networks
2207/4822 . . . . . Majority gates
2207/4824 . . . . . Neural networks
2207/4826 . . . . . using transistors having multiple electrodes of the same type, e.g. multi-emitter devices, neuron-MOS devices
2207/4828 . . . . Negative resistance devices, e.g. tunnel diodes, gunn effect devices
2207/483 . Indexing scheme relating to group G06F 7/483
2207/4835 . . Computations with rational numbers
2207/491 . Indexing scheme relating to groups G06F 7/491 - G06F 7/4917
2207/49105 . . Determining 9's or 10's complement
2207/4911 . . Decimal floating-point representation
2207/49115 . . Duodecimal numbers
2207/4912 . . Non-specified BCD representation
2207/49125 . . Non-specified decimal representation
2207/4913 . . Sterling system, i.e. mixed radix with digit weights of 10-20-12
2207/49135 . . Using 036012 or 3612 code, i.e. binary coded decimal representation with digit weight of (0,) 3, 6, (0,) 1 and 2 respectively
2207/4914 . . Using 2-out-of-5 code, i.e. binary coded decimal representation with digit weight of 2, 4, 2 and 1 respectively
2207/49145 . . Using 2421 code, i.e. non-weighted representation in which 2 out of 5 bits are "1" for each decimal digit
2207/4915 . . Using 4221 code, i.e. binary coded decimal representation with digit weight of 4, 2, 2 and 1 respectively
2207/49155 . . Using 51111 code, i.e. binary coded decimal representation with digit weight of 5, 1, 1, 1 and 1 respectively
2207/4916 . . Using 5211 code, i.e. binary coded decimal representation with digit weight of 5, 2, 1 and 1 respectively
2207/49165 . . Using 5311 code, i.e. binary coded decimal representation with digit weight of 5, 3, 1 and 1 respectively
2207/4917 . . Using 5321 or 543210 code, i.e. binary coded decimal representation with digit weight of 5,(4,) 3, 2, 1 (and 0) respectively
2207/49175 . . Using 54321 code, i.e. binary coded decimal representation with digit weight of 5, 4, 3, 2 and 1 respectively
2207/4918 . . Using Aiken code, i.e. using both first and last 5 of 16 possible 4-bit values, rendering the code symmetrical within the series of 16 values
2207/49185 . . Using biquinary code, i.e. combination of 5-valued and 2-valued digits, having values 0, 1, 2, 3, 4 and 0, 5 or 0, 2, 4, 6, 8 and 0, 1 respectively
2207/4919 . . Using excess-3 code, i.e. natural BCD + offset of 3, rendering the code symmetrical within the series of 16 possible 4 bit values
2207/49195 . . Using pure decimal representation, e.g. 10-valued voltage signal, 1-out-of-10 code
2207/492 . Indexing scheme relating to groups G06F 7/492 - G06F 7/496
2207/4921 . . Single digit adding or subtracting

Samsung Ex. 1123, p. 50
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2207/4922 . . Multi-operand adding or subtracting
2207/4923 . . Incrementer or decrementer
2207/4924 . . Digit-parallel adding or subtracting
2207/506 . Indexing scheme relating to groups G06F 7/506 - G06F 7/508
2207/5063 . . 2-input gates, i.e. only using 2-input logical gates, e.g. binary carry look-ahead, e.g. Kogge-Stone or Ladner-Fischer adder
2207/535 . Indexing scheme relating to groups G06F 7/535 - G06F 7/5375
2207/5351 . . Multiplicative non-restoring division, e.g. SRT, using multiplication in quotient selection
2207/5352 . . Non-restoring division not covered by G06F 7/5375
2207/5353 . . Restoring division
2207/5354 . . Using table lookup, e.g. for digit selection in division by digit recurrence
2207/5355 . . Using iterative approximation not using digit recurrence, e.g. Newton Raphson or Goldschmidt
2207/5356 . . Via reciprocal, i.e. calculate reciprocal only, or calculate reciprocal first and then the quotient from the reciprocal and the numerator
2207/544 . Indexing scheme relating to group G06F 7/544
2207/5442 . . Absolute difference
2207/552 . Indexing scheme relating to groups G06F 7/552 - G06F 7/5525
2207/5521 . . Inverse root of a number or a function, e.g. the reciprocal of a Pythagorean sum
2207/5523 . . Calculates a power, e.g. the square, of a number or a function, e.g. polynomials
2207/5525 . . Pythagorean sum, i.e. the square root of a sum of squares
2207/5526 . . Roots or inverse roots of single operands
2207/5528 . . . Non-restoring calculation, where each result digit is either negative, zero or positive, e.g. SRT
2207/556 . Indexing scheme relating to group G06F 7/556
2207/5561 . . Exponentiation by multiplication, i.e. calculating Y**INT(X) by multiplying Y with itself or a power of itself, INT(X) being the integer part of X
2207/58 . Indexing scheme relating to groups G06F 7/58 - G06F 7/588
2207/581 . . Generating an LFSR sequence, e.g. an m-sequence; sequence may be generated without LFSR, e.g. using Galois Field arithmetic
2207/582 . . Parallel finite field implementation, i.e. at least partially parallel implementation of finite field arithmetic, generating several new bits or trits per step, e.g. using a GF multiplier
2207/583 . . Serial finite field implementation, i.e. serial implementation of finite field arithmetic, generating one new bit or trit per step, e.g. using an LFSR or several independent LFSRs; also includes PRNGs with parallel operation between LFSR and outputs
2207/72 . Indexing scheme relating to groups G06F 7/72 - G06F 7/729
2207/7204 . . Prime number generation or prime number testing
2207/7209 . . Calculation via subfield, i.e. the subfield being GF(q) with q a prime power, e.g. GF ((2**m)**n) via GF(2**m)
2207/7214 . . Calculation via prime subfield, i.e. the subfield being GF(p) with p an integer prime > 3; e.g. GF(p**k) via GF(p)
2207/7219 . . Countermeasures against side channel or fault attacks
2207/7223 . . . Randomisation as countermeasure against side channel attacks
2207/7228 . . . . Random curve mapping, e.g. mapping to an isomorphous or projective curve
2207/7233 . . . . Masking, e.g. (A**e)+r mod n
2207/7238 . . . . . Operand masking, i.e. message blinding, e.g. (A+r)**e mod n; k.(P+R)
2207/7242 . . . . . Exponent masking, i.e. key masking, e.g. A**(e+r) mod n; (k+r).P
2207/7247 . . . . . Modulo masking, e.g. A**e mod (n*r)
2207/7252 . . . . of operation order, e.g. starting to treat the exponent at a random place, or in a randomly chosen direction
2207/7257 . . . . Random modification not requiring correction
2207/7261 . . . Uniform execution, e.g. avoiding jumps, or using formulae with the same power profile
2207/7266 . . . Hardware adaptation, e.g. dual rail logic; calculate add and double simultaneously
2207/7271 . . . Fault verification, e.g. comparing two values which should be the same, unless a computational fault occurred
2207/7276 . . Additional details of aspects covered by group G06F 7/723
2207/728 . . . using repeated square-and-multiply, i.e. right-to-left binary exponentiation
2207/7285 . . . using the window method, i.e. left-to-right k-ary exponentiation
2207/729 . . . . Sliding-window exponentiation
2207/7295 . . . using an addition chain, or an addition-subtraction chain

2209/00 Indexing scheme relating to G06F 9/00
2209/46 . Indexing scheme relating to G06F 9/46
2209/461 . . Bridge
2209/462 . . Lookup
2209/463 . . Naming
2209/48 . Indexing scheme relating to G06F 9/48
2209/481 . . Exception handling
2209/482 . . Application
2209/483 . . Multiproc
2209/484 . . Precedence
2209/485 . . Resource constraint
2209/486 . . Scheduler internals
2209/50 . Indexing scheme relating to G06F 9/50
2209/501 . . Performance criteria
2209/5011 . . Pool
2209/5012 . . Processor sets
2209/5013 . . Request control
2209/5014 . . Reservation
2209/5015 . . Service provider selection
2209/5016 . . Session
2209/5017 . . Task decomposition
2209/5018 . . Thread allocation
2209/5019 . . Workload prediction
2209/502 . . Proximity
2209/5021 . . Priority
2209/5022 . . Workload threshold

Samsung Ex. 1123, p. 51
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2209/503 . . Resource availability
2209/504 . . Resource capping
2209/505 . . Clust
2209/506 . . Constraint
2209/507 . . Low-level
2209/508 . . Monitor
2209/509 . . Offload
2209/52 . Indexing scheme relating to G06F 9/52
2209/521 . . Atomic
2209/522 . . Manager
2209/523 . . Mode
2209/54 . Indexing scheme relating to G06F 9/54
2209/541 . . Client-server
2209/542 . . Intercept
2209/543 . . Local
2209/544 . . Remote
2209/545 . . Gui
2209/546 . . Xcast
2209/547 . . Messaging middleware
2209/548 . . Queue
2209/549 . . Remote execution

2211/00 Indexing scheme relating to details of data-processing equipment not covered by groups G06F 3/00 - G06F 13/00

2211/001 . In-Line Device
2211/002 . Bus
2211/003 . Mutual Authentication Bi-Directional Authentication, Dialogue, Handshake
2211/004 . Notarisation, Time-Stamp, Date-Stamp
2211/005 . Network, LAN, Remote Access, Distributed System
2211/006 . . E-Mail
2211/007 . Encryption, En-/decode, En-/decipher, En-/decypher, Scramble, (De-)compress
2211/008 . . Public Key, Asymmetric Key, Asymmetric Encryption
2211/009 . Trust
2211/10 . Indexing scheme relating to G06F 11/10
2211/1002 . . Indexing scheme relating to G06F 11/1076
2211/1004 . . . Adaptive RAID, i.e. RAID system adapts to changing circumstances, e.g. RAID1 becomes RAID5 as disks fill up
2211/1007 . . . Addressing errors, i.e. silent errors in RAID, e.g. sector slipping and addressing errors
2211/1009 . . . Cache, i.e. caches used in RAID system with parity
2211/1011 . . . Clustered RAID, i.e. clustered or de-clustered RAID where data and parity are spread over more disks than blocks in a parity group
2211/1014 . . . Compression, i.e. RAID systems with parity using compression techniques
2211/1016 . . . Continuous RAID, i.e. RAID system that allows streaming or continuous media, e.g. VOD
2211/1019 . . . Fast writes, i.e. signaling the host that a write is done before data is written to disk
2211/1021 . . . Different size blocks, i.e. mapping of blocks of different size in RAID systems with parity
2211/1023 . . . Different size disks, i.e. non uniform size of disks in RAID systems with parity
2211/1026 . . . Different size groups, i.e. non uniform size of groups in RAID systems with parity
2211/1028 . . . Distributed, i.e. distributed RAID systems with parity
2211/103 . . . Hybrid, i.e. RAID systems with parity comprising a mix of RAID types
2211/1033 . . . Inactive data in parity groups, i.e. RAID parity groups where parity is calculated on only occupied or busy bits in the stripe
2211/1035 . . . Keeping track, i.e. keeping track of data and parity changes
2211/1038 . . . LFS, i.e. Log Structured File System used in RAID systems with parity
2211/104 . . . Metadata, i.e. metadata associated with RAID systems with parity
2211/1042 . . . NanoRAID, i.e. RAID systems using nanotechnology
2211/1045 . . . Nested RAID, i.e. implementing a RAID scheme in another RAID scheme
2211/1047 . . . No striping, i.e. parity calculation on a RAID involving no stripes, where a stripe is an independent set of data
2211/105 . . . On the fly coding, e.g. using XOR accumulators
2211/1052 . . . RAID padding, i.e. completing a redundancy group with dummy data
2211/1054 . . . Parity-fast hardware, i.e. dedicated fast hardware for RAID systems with parity
2211/1057 . . . Parity-multiple bits-RAID6, i.e. RAID 6 implementations
2211/1059 . . . Parity-single bit-RAID5, i.e. RAID 5 implementations
2211/1061 . . . Parity-single bit-RAID4, i.e. RAID 4 implementations
2211/1064 . . . Parity-single bit-RAID3, i.e. RAID 3 implementations
2211/1066 . . . Parity-small-writes, i.e. improved small or partial write techniques in RAID systems
2211/1069 . . . Phantom write, i.e. write were nothing is actually written on the disk of a RAID system
2211/1071 . . . Power loss, i.e. interrupted writes due to power loss in a RAID system
2211/1073 . . . Problems due to wear-out failures in RAID systems
2211/1076 . . . RAIP, i.e. RAID on platters
2211/1078 . . . RAIR, i.e. RAID on removable media
2211/108 . . . RAIT, i.e. RAID on tape drive
2211/1083 . . . Reserve area on a disk of a RAID system
2211/1085 . . . RMW, i.e. Read-Modify-Write method for RAID systems
2211/1088 . . . Scrubbing in RAID systems with parity
2211/109 . . . Sector level checksum or ECC, i.e. sector or stripe level checksum or ECC in addition to the RAID parity calculation
2211/1092 . . . Single disk raid, i.e. RAID with parity on a single disk
2211/1095 . . . Writes number reduction, i.e. reducing the number of writes in a RAID array with parity
2211/1097 . Boot, Start, Initialise, Power
2211/902 . Spectral purity improvement for digital function generators by adding a dither signal, e.g. noise

2212/00 Indexing scheme relating to accessing, addressing or allocation within memory systems or architectures

2212/10 . Providing a specific technical effect

Samsung Ex. 1123, p. 52
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2212/1004 . . Compatibility, e.g. with legacy hardware
2212/1008 . . Correctness of operation, e.g. memory ordering
2212/1012 . . Design facilitation
2212/1016 . . Performance improvement
2212/1021 . . . Hit rate improvement
2212/1024 . . . Latency reduction
2212/1028 . . Power efficiency
2212/1032 . . Reliability improvement, data loss prevention, degraded operation etc
2212/1036 . . . Life time enhancement
2212/1041 . . Resource optimization
2212/1044 . . . Space efficiency improvement
2212/1048 . . Scalability
2212/1052 . . Security improvement
2212/1056 . . Simplification
2212/15 . Use in a specific computing environment
2212/151 . . Emulated environment, e.g. virtual machine
2212/152 . . Virtualized environment, e.g. logically partitioned system
2212/154 . . Networked environment
2212/16 . General purpose computing application
2212/161 . . Portable computer, e.g. notebook
2212/163 . . Server or database system
2212/165 . . Mainframe system
2212/17 . Embedded application
2212/171 . . Portable consumer electronics, e.g. mobile phone
2212/172 . . Non-portable consumer electronics
2212/1721 . . . Home entertainment system, e.g. television set
2212/173 . . Vehicle or other transportation
2212/174 . . Telecommunications system
2212/175 . . Industrial control system
2212/177 . . Smart card
2212/178 . . Electronic token or RFID
2212/20 . Employing a main memory using a specific memory technology
2212/202 . . Non-volatile memory
2212/2022 . . . Flash memory
2212/2024 . . . Rewritable memory not requiring erasing, e.g. resistive or ferroelectric RAM
2212/2028 . . . Battery-backed RAM
2212/205 . . Hybrid memory, e.g. using both volatile and non-volatile memory
2212/206 . . Memory mapped I/O
2212/21 . Employing a record carrier using a specific recording technology
2212/211 . . Optical disk storage
2212/2112 . . . with a removable carrier, e.g. DVD
2212/213 . . Tape storage
2212/214 . . Solid state disk
2212/2142 . . . using write-once memory, e.g. OTPROM
2212/2146 . . . being detachable, e.g.. USB memory
2212/217 . . Hybrid disk, e.g. using both magnetic and solid state storage devices
2212/22 . Employing cache memory using specific memory technology
2212/221 . . Static RAM
2212/222 . . Non-volatile memory
2212/2228 . . . Battery-backed RAM
2212/224 . . Disk storage
2212/225 . . Hybrid cache memory, e.g. having both volatile and non-volatile portions
2212/25 . Using a specific main memory architecture
2212/251 . . Local memory within processor subsystem
2212/2515 . . . being configurable for different purposes, e.g. as cache or non-cache memory
2212/253 . . Centralized memory
2212/2532 . . . comprising a plurality of modules
2212/254 . . Distributed memory
2212/2542 . . . Non-uniform memory access [NUMA] architecture
2212/26 . Using a specific storage system architecture
2212/261 . . Storage comprising a plurality of storage devices
2212/262 . . . configured as RAID
2212/263 . . Network storage, e.g. SAN or NAS
2212/264 . . Remote server
2212/27 . Using a specific cache architecture
2212/271 . . Non-uniform cache access [NUCA] architecture
2212/272 . . Cache only memory architecture [COMA]
2212/28 . Using a specific disk cache architecture
2212/281 . . Single cache
2212/282 . . Partitioned cache
2212/283 . . Plural cache memories
2212/284 . . . being distributed
2212/285 . . Redundant cache memory
2212/286 . . . Mirrored cache memory
2212/30 . Providing cache or TLB in specific location of a processing system
2212/301 . . In special purpose processing node, e.g. vector processor
2212/302 . . In image processor or graphics adapter
2212/303 . . In peripheral interface, e.g. I/O adapter or channel
2212/3035 . . In peripheral device, e.g. printer
2212/304 . . In main memory subsystem
2212/3042 . . . being part of a memory device, e.g. cache DRAM
2212/305 . . being part of a memory device, e.g. cache DRAM
2212/306 . . In system interconnect, e.g. between two buses
2212/31 . Providing disk cache in a specific location of a storage system
2212/311 . . In host system
2212/312 . . In storage controller
2212/313 . . In storage device
2212/314 . . In storage network, e.g. network attached cache
2212/40 . Specific encoding of data in memory or cache
2212/401 . . Compressed data
2212/402 . . Encrypted data
2212/403 . . Error protection encoding, e.g. using parity or ECC codes
2212/45 . Caching of specific data in cache memory
2212/451 . . Stack data
2212/452 . . Instruction code
2212/453 . . Microcode or microprogram
2212/454 . . Vector or matrix data
2212/455 . . Image or video data
2212/46 . Caching storage objects of specific type in disk cache
2212/461 . . Sector or disk block
2212/462 . . Track or segment
2212/463 . . File
2212/464 . . Multimedia object, e.g. image, video
2212/465 . . Structured object, e.g. database record
2212/466 . . Metadata, control data
2212/468 . . The specific object being partially cached

Samsung Ex. 1123, p. 53
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2212/50 . Control mechanisms for virtual memory, cache or TLB
2212/502 . . using adaptive policy
2212/507 . . using speculative control
2212/60 . Details of cache memory
2212/601 . . Reconfiguration of cache memory
2212/6012 . . . of operating mode, e.g. cache mode or local memory mode
2212/602 . . Details relating to cache prefetching
2212/6022 . . Using a prefetch buffer or dedicated prefetch cache
2212/6024 . . History based prefetching
2212/6026 . . Prefetching based on access pattern detection, e.g. stride based prefetch
2212/6028 . . Prefetching based on hints or prefetch instructions
2212/603 . . of operating mode, e.g. cache mode or local memory mode
2212/6032 . . Way prediction in set-associative cache
2212/604 . . Details relating to cache allocation
2212/6042 . . Allocation of cache space to multiple users or processors
2212/6046 . . . Using a specific cache allocation policy other than replacement policy
2212/608 . . Details relating to cache mapping
2212/6082 . . . Way prediction in set-associative cache
2212/62 . Details of cache specific to multiprocessor cache arrangements
2212/621 . . Coherency control relating to peripheral accessing, e.g. from DMA or I/O device
2212/622 . . State-only directory, i.e. not recording identity of sharing or owning nodes
2212/65 . Details of virtual memory and virtual address translation
2212/651 . . Multi-level translation tables
2212/652 . . Page size control
2212/653 . . Page colouring
2212/654 . . Look-ahead translation
2212/655 . . Same page detection
2212/656 . . Address space sharing
2212/657 . . Virtual address space management
2212/68 . Details of translation look-aside buffer [TLB]
2212/681 . . Multi-level TLB, e.g. microTLB and main TLB
2212/682 . . Multiprocessor TLB consistency
2212/683 . . Invalidation
2212/684 . . TLB miss handling
2212/70 . Details relating to dynamic memory management
2212/702 . . Conservative garbage collection
2212/72 . Details relating to flash memory management
2212/7201 . . Logical to physical mapping or translation of blocks or pages
2212/7202 . . Allocation control and policies
2212/7203 . . Temporary buffering, e.g. using volatile buffer or dedicated buffer blocks
2212/7204 . . Capacity control, e.g. partitioning, end-of-life degradation
2212/7205 . . Cleaning, compaction, garbage collection, erase control
2212/7206 . . Reconfiguration of flash memory system
2212/7207 . . management of metadata or control data
2212/7208 . . Multiple device management, e.g. distributing data over multiple flash devices
2212/7209 . . Validity control, e.g. using flags, time stamps or sequence numbers
2212/7211 . . Wear leveling

2213/00 Indexing scheme relating to interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units

2213/0002 . Serial port, e.g. RS232C
2213/0004 . Parallel ports, e.g. centronics
2213/0006 . Extension to the industry standard architecture [EISA]
2213/0008 . High speed serial bus, e.g. Fiber channel
2213/0012 . High speed serial bus, e.g. IEEE P1394
2213/0014 . Futurebus
2213/0016 . Inter-integrated circuit (I2C)
2213/0018 . Industry standard architecture [ISA]
2213/0022 . Multibus
2213/0024 . Peripheral component interconnect [PCI]
2213/0026 . PCI express
2213/0028 . Serial attached SCSI [SAS]
2213/0032 . Serial ATA [SATA]
2213/0034 . Sun microsystems bus [SBus]
2213/0036 . Small computer system interface [SCSI]
2213/0038 . System on Chip
2213/0042 . Universal serial bus [USB]
2213/0044 . Versatile modular eurobus [VME]
2213/0052 . Assignment of addresses or identifiers to the modules of a bus system
2213/0054 . Split transaction bus
2213/0056 . Use of address and non-data lines as data lines for specific data transfers to temporarily enlarge the data bus and increase information transfer rate
2213/0058 . Bus-related hardware virtualisation
2213/0062 . Bandwidth consumption reduction during transfers
2213/0064 . Latency reduction in handling transfers
2213/16 . Memory access
2213/1602 . . Memory access type
2213/24 . Interrupt
2213/2402 . . Avoidance of interrupt starvation
2213/2404 . . Generation of an interrupt or a group of interrupts after a predetermined number of interrupts
2213/2406 . . Generation of an interrupt or a group of interrupts after a fixed or calculated time elapses
2213/2408 . . Reducing the frequency of interrupts generated from peripheral to a CPU
2213/2412 . . Dispatching of interrupt load among interrupt handlers in processor system or interrupt controller
2213/2414 . . Routing of interrupt among interrupt handlers in processor system or interrupt controller
2213/2416 . . Determination of the interrupt source among a plurality of incoming interrupts
2213/2418 . . Signal interruptions by means of a message
2213/2422 . . Sharing of interrupt line among a plurality of interrupt sources
2213/2424 . . Interrupt packet, e.g. event
2213/28 . DMA
2213/2802 . . DMA using DMA transfer descriptors
2213/2804 . . Systems and methods for controlling the DMA frequency on an access bus
2213/2806 . . Space or buffer allocation for DMA transfers
2213/2808 . . Very long instruction word DMA
2213/36 . Arbitration
2213/3602 . . Coding information on a single line

Samsung Ex. 1123, p. 54
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431

2213/3604 . . Coding information on multiple lines
2213/38 . Universal adapter
2213/3802 . . Harddisk connected to a computer port
2213/3804 . . Memory card connected to a computer port directly or by means of a reader/writer
2213/3806 . . Mobile device
2213/3808 . . Network interface controller
2213/3812 . . USB port controller
2213/3814 . . Wireless link with a computer system port
2213/3852 . . Converter between protocols
2213/3854 . . Control is performed at the peripheral side
2213/40 . Bus coupling
2213/4002 . . Universal serial bus hub with a single upstream port
2213/4004 . . Universal serial bus hub with a plurality of upstream ports

2216/00 Indexing scheme relating to additional aspects of information retrieval not explicitly covered by G06F 16/00 and subgroups
2216/01 . Automatic library building
2216/03 . Data mining
2216/05 . Energy-efficient information retrieval
2216/07 . Guided tours
2216/09 . Obsolescence
2216/11 . Patent retrieval
2216/13 . Prefetching
2216/15 . Synchronised browsing
2216/17 . Web printing

Indexing scheme associated with group G06F 18/00, relating to pattern recognition specially adapted for signal processing

2218/00 Aspects of pattern recognition specially adapted for signal processing
2218/02 . Preprocessing
2218/04 . . Denoising
2218/06 . . . by applying a scale-space analysis, e.g. using wavelet analysis
2218/08 . Feature extraction
2218/10 . . by analysing the shape of a waveform, e.g. extracting parameters relating to peaks
2218/12 . Classification; Matching
2218/14 . . by matching peak patterns
2218/16 . . by matching signal segments
2218/18 . . . by plotting the signal segments against each other, e.g. analysing scattergrams
2218/20 . . . by applying autoregressive analysis
2218/22 . Source localisation; Inverse modelling

2219/00 Indexing scheme relating to application aspects of data processing equipment or methods
2219/10 . Environmental application, e.g. waste reduction, pollution control, compliance with environmental legislation

2221/00 Indexing scheme relating to security arrangements for protecting computers, components thereof, programs or data against unauthorised activity
2221/03 . Indexing scheme relating to G06F 21/50, monitoring users, programs or devices to maintain the integrity of platforms
2221/031 . . Protect user input by software means
2221/032 . . Protect output to user by software means
2221/033 . . Test or assess software
2221/034 . . Test or assess a computer or a system
2221/21 . Indexing scheme relating to G06F 21/00 and subgroups addressing additional information or applications relating to security arrangements for protecting computers, components thereof, programs or data against unauthorised activity
2221/2101 . . Auditing as a secondary aspect
2221/2103 . . Challenge-response
2221/2105 . . Dual mode as a secondary aspect
2221/2107 . . File encryption
2221/2109 . . Game systems
2221/2111 . . Location-sensitive, e.g. geographical location, GPS
2221/2113 . . Multi-level security, e.g. mandatory access control
2221/2115 . . Third party
2221/2117 . . User registration
2221/2119 . . Authenticating web pages, e.g. with suspicious links
2221/2121 . . Chip on media, e.g. a disk or tape with a chip embedded in its case
2221/2123 . . Dummy operation
2221/2125 . . Just-in-time application of countermeasures, e.g., on-the-fly decryption, just-in-time obfuscation or de-obfuscation
2221/2127 . . Bluffing
2221/2129 . . Authenticate client device independently of the user
2221/2131 . . Lost password, e.g. recovery of lost or forgotten passwords
2221/2133 . . Verifying human interaction, e.g., Captcha
2221/2135 . . Metering
2221/2137 . . Time limited access, e.g. to a computer or data
2221/2139 . . Recurrent verification
2221/2141 . . Access rights, e.g. capability lists, access control lists, access tables, access matrices
2221/2143 . . Clearing memory, e.g. to prevent the data from being stolen
2221/2145 . . Inheriting rights or properties, e.g., propagation of permissions or restrictions within a hierarchy
2221/2147 . . Locking files
2221/2149 . . Restricted operating environment
2221/2151 . . Time stamp
2221/2153 . . Using hardware token as a secondary aspect

Samsung Ex. 1123, p. 55
Samsung Electronics Co., Ltd. v. Netlist, Inc., IPR2025-01431